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The Politics of the American Policymaking System

by

Ian R. Turner

A dissertation presented to the
Graduate School of Arts and Sciences
of Washington University in
partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

May 2015
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Contents

List of Figures	iv
List of Tables	v
Acknowledgments	vi
Abstract	xi
1 Introduction	1
1.1 Political Agency Problems and Representative Democracy	3
1.2 Oversight as a Solution	6
1.3 Plan for the Dissertation	8
2 Working Smart <i>and</i> Hard? A Baseline Theory of Oversight and Agency Effort	12
2.1 Introduction	12
2.2 A Model of Policymaking Between Agencies and Courts	19
2.3 Agency Policymaking, Effort, and Judicial Review	24
2.4 Judicial Review, Incentives, and Agency Effort	32
2.4.1 Implications for Congressional Oversight	36
2.5 Conclusion	38
3 Reviewing Procedure vs. Judging Substance: The Differential Effects of Judicial Review on Agency Policymaking	40
3.1 Introduction	40
3.2 The Model	48
3.3 Procedural Review	52
3.3.1 Procedural Review, Conditional-Deference, and Agency Effort Incentives	59
3.4 Substantive Review	62
3.5 Discussion and Conclusion	72
4 Political Agency, Oversight, and Bias: The Instrumental Value of Politicized Policymaking	74
4.1 Introduction	74
4.2 The Model	83

4.3	Analysis	89
4.3.1	Equilibrium Judicial Review	89
4.3.2	Agency Decision-making	93
4.3.3	Agency Effort Choices and Judicial Review	101
4.3.4	The Instrumental Value of Politicized Policymaking	103
4.4	Empirical Implications	109
4.5	Conclusion	113
5	Designed to Work? The Impact of Oversight and Agency Characteristics on Administrative Effort Incentives	115
5.1	Introduction	115
5.2	A Theory of Oversight and Administrative Effort	117
5.3	Oversight, Agency Bias, and Administrative Effort	121
5.4	Agency Characteristics and Administrative Effort	123
5.4.1	Agency Effort and Policy Motivations	124
5.4.2	Agency Effort and Reversal Aversion	127
5.4.3	Agency Effort and Effort Costs	130
5.5	Discussion	132
5.6	Conclusion	135
6	Conclusion	137
6.1	Implications	140
6.2	Avenues for Future Research	142
	References	146
Appendix A	Appendix to Chapter 2	158
Appendix B	Appendix to Chapter 3	166
Appendix C	Appendix to Chapter 4	177
Appendix D	Appendix to Chapter 5	191

List of Figures

2.1	An Example in which Judicial Review Weakens Agency Effort Incentives. . .	34
3.1	An Example of Fully Sincere Equilibrium Unraveling.	71
4.1	An Example of Equilibrium Agency Effort.	98
4.2	An Example of Optimal Legislative Choice of Agency Bias.	104
4.3	Examples of Optimal Institutional Arrangements for Legislature.	108
4.4	An Example of Legislative Choice of Agency Bias with Low and High Policy Motivations.	110
4.5	An Example Illustrating Complementarity of t_A and π	111
5.1	An Example of the Equilibrium	119
5.2	Effects of Increased Agency Bias on Agency Effort	121
5.3	Effects of Increased Policy Motivations on Agency Effort Conditional on Agency Bias	125
5.4	Effects of Increased Reversal Aversion on Agency Effort Conditional on Agency Bias	129
5.5	Effects of Increased Effort Costs on Agency Effort Conditional on Agency Bias	131

List of Tables

4.1	Thresholds for Agency-Court Sub-game.	99
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Ian R. Turner

Washington University in Saint Louis
May 2015

Dedicated to my family, for always supporting me even when I veered off the equilibrium path.

ABSTRACT OF THE DISSERTATION

The Politics of the American Policymaking System

by

Ian R. Turner

Doctor of Philosophy in Political Science

Washington University in St. Louis, 2015

Professor John W. Patty, Chair

Most public policy is developed and implemented by the federal bureaucracy. The possibility of unelected bureaucrats subverting the wishes of popularly elected political principals threatens to sever democratic control of policy by the populace. Through a series of essays, this dissertation explores the opportunities and limitations of one form of bureaucratic control: ex post political oversight by a third-party. Through a series of formal models I illustrate how oversight, such as judicial or executive review of agency actions, structures the policymaking incentives of bureaucratic agencies. The way oversight affects agency behavior, in turn, structures incentives for political principals to design and sustain politically biased policymaking agencies in exchange for higher quality policy promulgation. Overall, the results illustrate the good and bad sides of political oversight and how it can be leveraged to inform several important issues of institutional design. The results suggest paths to improve bureaucratic motivational strategies by administrators.

Chapter 1

Introduction

In the United States the vast majority of public policy is developed and implemented by the federal bureaucracy. In fact, some recent estimates suggest that administrative agencies, rather than Congress, are responsible for upwards of 90% of American ‘laws’ (Warren, 2004).¹ Public agencies implement policy dealing with virtually every aspect of American life. From environmental protection to fuel standards to health care delivery to allocation and provision of government assistance, disaster relief, and social security, at some point all citizens are affected by the products of administrative action.

Due to the prevalence of bureaucratic policymaking, there are worries that bureaucracy is not responsive to popularly elected political principals. Based on this concern there is a rich literature investigating how bureaucracy can be effectively monitored and controlled through strategic crafting of administrative procedures² or subjection of agency actions to third-party oversight,³ and encouraged to choose policies in line with principals’ wishes,⁴ or acquire information and develop costly expertise.⁵ Much of this literature has focused on

¹This statistic is also cited in Yackee (2012).

²See, for instance, Bawn (1995); McCubbins and Schwartz (1984); McCubbins, Noll and Weingast (1987, 1989)

³See, for instance, Bueno de Mesquita and Stephenson (2007); Bubba and Warren (2014); Dragu and Board (2013); McCubbins and Schwartz (1984); Shipan (1997).

⁴See, for instance, Epstein and O’Halloran (1994, 1999); Gailmard (2002, 2009*b*); Stephenson (2008*b*).

⁵See, for instance, Gailmard and Patty (2007, 2013*a*); Stephenson (2007).

how political principals can ensure that bureaucracy chooses the substance of policy in line with the principal's goals.⁶ Thus, studies of bureaucratic control have been largely focused on how to counteract agency biases with oversight mechanisms.

However, bureaucrats not only craft substantive policy that may diverge from the wishes of their principal(s), they also invest effort into effectively implementing or enforcing policies whatever the substantive content.⁷ By explicitly recognizing this distinction between substantive policy choices and effort-based implementation or enforcement quality, this study contributes to our understanding of bureaucratic oversight through a focus on how oversight, as a monitoring tool, provides (or does not provide) incentives for agencies to work hard at producing high quality, effective policy outcomes.

In particular, this dissertation project provides an in-depth examination of how subjection of agencies to extensive oversight by a third-party institution impacts policymaking incentives. In particular, I seek to answer a set of interrelated questions:

1. How does oversight impact bureaucratic policymaking incentives? What are its limitations as a mechanism of political control?
2. How do the dynamics of oversight and bureaucratic policymaking structure the incentives for agency design and affect strategies to motivate bureaucratic actors?

The answers to these questions provide insight into how and when oversight can be effectively used as a tool of political control. These results have implications for congressional and executive oversight as well as issues of agency design.

⁶Though see Bueno de Mesquita and Stephenson (2007) for a notable example of work that focuses on oversight's impact on effort incentives rather than substantive policy choices.

⁷One way to think about this distinction is the 'street-level' bureaucracy point of view exemplified by Lipsky (1980).

This introductory chapter proceeds in three pieces. First, I briefly outline why bureaucratic policymaking may or may not conflict with deeply held principles of democracy. Second, I discuss how oversight may serve as a (partial) solution to problems that arise from delegation. Finally, I lay out and discuss the plan for this study.

1.1 Political Agency Problems and Representative Democracy

The importance of administrative policymaking has led to a long tradition of scholarly interest in whether and how bureaucracy fits into representative democracy. One of the most pervasive concerns is the reconciliation of effective democratic representation and effective policymaking. This tension is predicated on the practice of delegation. Policymaking authority is delegated from elected representatives (e.g., Congress or the president) to unelected bureaucrats. There are those that have argued that delegation is necessary given the complexity of the social and economic environments in which policymaking is required (e.g., Spence and Cross, 2000), and perhaps even democratically desirable because its effectiveness can bestow legitimacy on democratic governments (Meier and O'Toole, 2006; Suleiman, 2003) or offset the large transaction costs imposed by democracy (Meier, 1997).⁸ However, some have argued that delegation is a democratically illegitimate abdication of policymaking authority by Congress (e.g., Lowi, 1979) that threatens to sever popular control of government action through the conduit of elected representatives, which is a pillar of democratic theory (Dahl, 1989; Pettit, 2012; Pitkin, 1967).

⁸See also Patty and Penn (2010) and Patty and Penn (2014) for comprehensive formal treatments of the fundamental connections between collective choice, legitimacy, and policy.

Implicit in the tension between democratic governance and effective governance as well as both the defenses and challenges to delegation is the idea that the bureaucracy enjoys an expertise advantage over popularly elected principals. In the words of Weber (1947), the bureaucracy faces off against political “dilettantes” rather than responding to the wishes of a popularly elected “master.” This advantage, whether grounded in informational asymmetries, superior capacity, or simply a greater ability to specialize, introduces the potential for so-called political agency problems. Two of the most prevalent manifestations of these political agency problems introduced by delegation are bias and slack. Biased agencies may utilize their relative advantages to set policy that subverts or diverges from the wishes of their political principals (Bubb and Warren, 2014; Gailmard, 2002).⁹ Agency slack refers to situations in which agencies make insufficient effort investments to ensure policies are implemented are enforced effectively, whatever their substantive content (Bueno de Mesquita and Stephenson, 2007; Moe, 1990).¹⁰

Both of these issues can introduce distortions or inefficiencies in realized policy outcomes. Consider an agency that has developed a high level of programmatic capacity by investing large amounts of effort toward developing programs and procedures that lead to very high quality enforcement of regulations once they are promulgated.¹¹ For instance, instituting a

⁹Scholars have also used the term “bureaucratic drift” as a catch-all term for bureaucratic behavior that corresponds to crafting policies that are biased away from the preferences of a principal (Bueno de Mesquita and Stephenson, 2007). Some prevalent examples include agency capture by regulated or interested groups (Niskanen, 1971), selection practices and career concerns (Heclo, 1988), or implicit motivations (Gailmard and Patty, 2007; Prendergast, 2007; Seidenfeld, 2002).

¹⁰A canonical example of slack is the diversion of resources away from productive activities to things like leisure time (Moe, 1990). Another, and more realistic, example is the diversion of time and effort away from projects important to the principal to projects preferred by the bureaucrats working on policy based on their own, intrinsic, motivations (Feldman, 1989).

¹¹I am adopting terminology from Carpenter (2001). Programmatic capacity refers to an agency’s capacity to actually implement policy on the ground effectively while analytic capacity refers to an agency’s capacity to adequately craft proper regulations given the agency’s goals and the policy environment.

comprehensive program that guides OSHA on-site inspections for safety hazards and rule violations is an example of an agency investing effort to improve the enforcement of regulations once they are promulgated. This could be accomplished by staffing the inspection program with competent bureaucrats that are less likely to miss violations (or assert erroneous violations) or standardizing the procedures for conducting inspections so that, all else equal, inspectors make less errors. However, suppose that OSHA wants regulations that err on the side of stringent safety standards even if they sometimes harm business by increasing costs. Further suppose that the Congressional committee charged with overseeing OSHA activities would prefer relatively more lax safety regulations that do not impose quite so heavy a cost on business. In this instance the agency is well-equipped to effectively administer policy once its substance has been hammered out but it will also pursue regulations that are biased from the point of view of its political principal. Thus, from the principal's perspective policy outcomes are suboptimal due to the agency's bias.

Conversely, suppose that OSHA and the Congressional committee agree completely on the appropriate stringency of safety regulations but OSHA has not invested effort in improving inspector hiring practices or standardizing inspection procedures. In this case, bias is not a concern for the principal as the agency prefers the same substantive policy. However, the lack of effort investment by the agency to improve enforcement or implementation of the regulations once they are crafted will also lead to potentially ineffective policy outcomes. This is because distortions in the actual realization of outcomes, even though the agency has crafted policy faithfully, are introduced through the lack of agency effort investments. The fact that both bias and slack can introduce potentially severe inefficiencies into administrative policymaking creates a dual monitoring problem for a political principal. How can agencies that are empowered to both craft the substantive content of policy and effectively

implement or enforce it be effectively monitored? Put another way, how can a political principal motivate bureaucracy to work hard to effectively implement or enforce policies that are in line with her goals?

1.2 Oversight as a Solution

An oft-suggested solution to the political agency problems associated with bureaucratic policymaking is subjection of agencies to ex post oversight. The basic logic underlying this approach of political control is represented succinctly in the administrative procedures literature. Focusing on whether Congress was effectively overseeing a growing executive branch, McCubbins and Schwartz (1984) argued that so-called ‘fire-alarm oversight’ was an often employed Congressional oversight tactic. They argued that rather than only use tools of oversight such as committee hearings, randomly sampling agency activities to look for violations, or other ‘police patrol’ methods of oversight, Congress need only establish and perfect “a system of rules, procedures, and informal practices that enable citizens and organized interest groups to examine administrative decisions..., to charge executive agencies with violating congressional goals, and to seek remedies from agencies, courts, and Congress itself” (p. 166). Congress, as the political principal in this case, can effectively oversee agency policymaking by instituting a system of procedures that facilitates challenges to agency decision-making.

Judicial oversight. A prevalent example of this type of oversight in practice is judicial review. Particularly in the case of Congress as a political principal, judicial review is an integral part of the bureaucratic oversight system. Virtually all pieces of legislation authorizing

bureaucratic agencies to make policy also include a judicial review provision that more or less spells out how strongly agency actions will be subjected to judicial oversight. By designating what agency actions are subject to judicial scrutiny, what sets of individuals or groups are empowered or precluded from judicial challenge of agency actions, and designating whether courts should review the substance of agency policy or the procedures through which outcomes were implemented, these judicial review provisions outline how courts are to monitor bureaucratic policymaking activities for Congress.¹² While courts do not have the ability to slash agency budgets or substitute their own policies for those promulgated by an agency under review, they can effectively veto agency-made policy by overturning agency actions (Bueno de Mesquita and Stephenson, 2007). In line with this particular form of bureaucratic oversight, Chapters 2 and 3 explore both the desirable effects and the limitations of judicial review as a tool of political control. The results in those chapters speak to, among other things, how judicial review provisions should be designed given characteristics of the policy environment and the agency making policy. These results also provide insight into another prevalent form of bureaucratic oversight: executive review of agency actions.

Executive oversight. The Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget (OMB) is an agency located in the Executive Office of the President. Based on executive orders issued by Presidents Reagan, Clinton, and Obama the OIRA is directed to review proposed regulations by bureaucratic agencies. While the OIRA cannot formally overturn proposed regulations, they can effectively veto the prospect of these proposals ever being realized by delaying regulations indefinitely (Cooper and West, 1988). Similar to judicial review of agency actions, the OIRA has no control over things like agency budgets, staffing, or the procedural rules in place, but it does effectively have

¹²See Huber and Shipan (2002) for a comprehensive treatment of the political wrangling that often occurs over these provisions.

a veto over any proposed regulations that it finds to be unsatisfactory. As such, oversight institutions like judicial review and OIRA review do serve as an institutional check on bureaucratic policymaking through their authority to effectively overturn agency-made policy. This can have a significant impact on agency policymaking behavior (Bueno de Mesquita and Stephenson, 2007; Gordon and Hafer, 2005). In particular, review procedures can induce agencies to expend more effort than they otherwise might to amass records justifying not only the substantive content of policies but also the means through which the agency will implement and enforce those policies. This possibility, along with the implications that follow from it, is central to the insights provided in this dissertation.

1.3 Plan for the Dissertation

Overall, whether or not the focus is on judicial review, executive oversight, or a similar oversight mechanism, the idea that oversight can discipline agency decision-making to remain in line with the goals of political principals is an important one. This study is one attempt to help further our understanding of the opportunities created and constraints imposed by oversight of bureaucratic policymaking. In the remainder of the dissertation, I analyze a series of game-theoretical models to provide insight into how oversight affects agency policy-making incentives and incentives for agency design and managerial strategies. I demonstrate not only the virtues of oversight but also its limitations and the way in which its presence structures incentives for political principals in a variety of important institutional settings. Overall the analyses sum to an overarching picture of the dynamics of an important piece of the American policymaking system.

The next chapter (Chapter 2) develops a baseline model of agency-overseer interaction. It examines how institutions like judicial review or executive review by the OIRA impact agency effort incentives. As noted above, agencies not only make substantive policy *choices*, they must also *implement* policy effectively. I show that judicial review can impact agency effort choices even when bureaucratic subversion is not a concern. At times the court has no impact on this effort and the agency is unconstrained. However, when the agency's effort investment dictates whether or not the court defers to the agency's actions judicial review does affect effort decisions. In this environment, judicial review can either strengthen or, counter-intuitively, weaken agency effort incentives. Implications for congressional are discussed in light of these results.

In Chapter 3, I explore how different types of oversight affect agency decision-making. In particular, I focus on the different incentive effects associated with substantive versus procedural review of agency actions. Focusing on judicial review as a particular application, I analyze two variants of a model of policymaking between an agency and a court. In the first case—procedural review—the court only takes agency effort investments into account when making its review decisions. At times judicial review can induce higher effort investment from the agency than would otherwise be obtained. At other times judicial review can also dissuade agencies from investing high effort, as in the previous chapter. In the second case—substantive review—the court reviews both the agency's policy choice and the effort invested toward implementing policy effectively. Surprisingly, this additional information in the review process precludes fully revealing policy choices from the agency *even when the agency is perfectly faithful*.

Chapter 4 leverages the way in which oversight structures agency policymaking incentives to provide insight into how a political principal ought to optimally design a policymaking

agency in light of the impact oversight has on agency effort. In particular, I develop a theory of policymaking between a principal, administrative agency, and an overseer that can reverse agency actions. The agency can increase the overall quality of outcomes through effort investments in policy implementation or enforcement. Oversight can impact these effort investments, but this is only true if agency bias does as well. The principal, in light of agency-overseer interactions, chooses the bias of the agency to which it will allocate policymaking authority. The principal is forced to trade off spatial policy bias for increased effort investments. That is, the principal trades off bureaucratic “drift” to provide incentives for agencies to reduce “slack.” In most cases, the principal benefits from empowering a policymaking agency that is biased on the opposite side of its ideal point from the overseer. These results have implications for institutional design of administrative agencies and the inter-institutional nature of policymaking.

In Chapter 5, I utilize comparative statics derived from the agency-overseer interactions characterized in Chapter 4 to examine the potential efficacy of different managerial motivation strategies. A central concern for organizational management is how to properly motivate workers. This is especially true in public bureaucracies where monetary incentives (e.g., wage contracts) are difficult to tie to performance. In this chapter I present results that highlight the impact of well-known characteristics of agency design and the policy environment on administrative effort. The ability of a political principal to properly motivate administrative effort by attempting to alter agency characteristics, like “sense of mission” or how averse an agency is to being reprimanded by an overseer, depends crucially on an agency’s policy biases and the nature of ex post oversight. These results have implications for agency design and delegation, managerial strategies for effort motivation, and empirical studies of bureaucratic policymaking.

My dissertation concludes that oversight can certainly provide positive incentives that induce desirable bureaucratic behavior. However, oversight can also provide perverse incentives that lead to suboptimal bureaucratic policymaking. Which type of incentive effects obtain depends critically on a complex mix of agency and policy environment specific characteristics. Moreover, these limitations structure incentives for political principals to generally prefer biased agencies to make policy on their behalf. This has implications not only for delegation decisions, but also for the politics of agency design. There are certainly opportunities for principals to take advantage of the dynamic nature of the agency-overseer relationship but these opportunities are limited by well-known features of agencies and the policy environments they are asked to regulate.

Chapter 2

Working Smart *and* Hard? A Baseline Theory of Oversight and Agency Effort

2.1 Introduction

The lion's share of policy in the United States is made by administrative agencies, rather than through legislative or executive actions. One pervasive concern with the rise of administration is a potential severing of democratic connections to policy. The concern arises due to the possibility of agency subversion of directives provided by elected political principals (*e.g.*, Gailmard, 2002). One mechanism in the current system to monitor agency compliance with legislative or executive directives is the institution of judicial review. Scholars have highlighted the ability of judicial review to ensure that agencies are choosing policies that are ideologically (or substantively) congruent with the wishes of some democratically accountable political principal, *e.g.*, Congress (see *e.g.*, Epstein and O'Halloran, 1999; Shipan,

1997). However, agencies do more than make policy *choices*, they must also put these policies into practice through effective *implementation* of those choices. The effect of judicial review on the incentives for agencies to work hard to effectively implement policy is less discussed but of equal importance (but see *e.g.*, Canes-Wrone, 2003, 2006). Just as biased policy choices by agencies can lead to adverse or inefficient outcomes so too can poorly implemented policies *even when policy choices have been made perfectly faithfully*. This raises the question of how, and when, judicial review has an impact on not only agency policy choices but on the effort invested to improve implementation of policy? That is, given that agencies are working smart, how does judicial review impact whether they work hard?

The substantive impact of judicial review of agency policy actions on regulatory quality has long been of interest in law and policy literatures. For instance, Melnick (1983) argues against the then (and somewhat now) wide-held view that judicial review of agency policy led to improvements in environmental regulation. He concludes that, overall, court decisions dealing with various aspects of Clean Air Act regulation harmed the quality of environmental policy. In contrast, Sunstein (1989) argues that, on balance, judicial review of agency actions produces net benefits. He notes courts' role in invalidating many ill-conceived agency actions such as (arguably) over-aggressive regulations of transportation emissions in the 1970s.¹³ Disagreements like this over whether judicial review of administrative action is beneficial or not suggests that assessments of the impact of review on different aspects of the process are required to better understand when and how positive or negative effects of review are realized. As Sunstein succinctly notes, "judicial review should be evaluated in terms of its systemic consequences for the administrative process, which takes place in the shadow of judicial review."

¹³Sunstein includes the following particular court cases to which he refers: *South Terminal Corp. v. EPA*, 504 F.2d 646 (1st Cir. 1974) and *Texas v. EPA*, 499 F.2d. 289 (5th Cir. 1974).

In this paper I assess the effects of judicial review on the administrative process through the lens of its effect on the incentives for agencies to work hard—invest high effort—to implement policy choices effectively. Specifically, I analyze a game-theoretic model of policymaking between an administrative agency and a reviewing court. Judicial review can at times produce desirable effects by inducing an agency to invest more effort to improve implementation of policy when it otherwise would not. However, at other times judicial review introduces perverse incentive effects that lead agencies to invest low levels of effort when they would have invested high effort were they not making policy in the shadow of review.

These results illuminate implications for several issues of institutional design. Even when the court’s review choices and the agency’s effort choices do not affect one another the insights provided by the model suggest a rationale for standards of review such as strict scrutiny, as well as underpinnings for the traditionally held view that courts always (or at least at very high rates) defer to agency policy actions in certain policy areas. Moreover, when judicial review does affect agency effort investment choices—through either the strengthening or weakening of effort incentives—the results have implications for Congressional oversight. In particular, the results provide insight into when Congress ought to subject agency policy actions to more or less scrutiny.

This paper contributes to a broad literature centered on agency oversight and control. The main focus of this work is to identify how Congress (or another principal) can effectively monitor policymaking agencies and constrain them to make choices in line with Congressional wishes. For instance, previous work has studied legislatures’ decision to delegate and optimal levels of discretion (Epstein and O’Halloran, 1999; Gailmard, 2009*a*), how administrative procedures can be structured to facilitate effective ex post control once delegation has occurred (Bawn, 1995; McCubbins, Noll and Weingast, 1987, 1989), how principals may

be able to extract (private) information from agencies or induce bureaucrats to invest in costly technical expertise (Gailmard and Patty, 2007, 2013*a*; Stephenson, 2007), the optimal allocation of oversight activities when a single principal must monitor multiple agents with dynamic resource constraints (Strayhorn, Carrubba and Giles, forthcoming), how the use of different incentive structures can induce desirable behavior from the agency (Ting, 2001; Weingast and Moran, 1983), as well as the best methods for utilizing ex post oversight (Calvert, McCubbins and Weingast, 1989; McCubbins and Schwartz, 1984). The results in this paper suggest that the mere presence of judicial review can induce agencies to *ex ante* invest high effort. The court, as a third-party ex post monitor of agency actions, can impact the behavior of bureaucrats through its ability to reverse agency policy actions. In contrast to many of these seminal studies, this paper develops a framework that accommodates both bureaucratic policy choices and implementation effort decisions. Thus, rather than focusing exclusively on the ability of judicial review to constrain bureaucrats to make more congruent policy choices, this paper shows that judicial review plays a role in policymaking through its effect on another dimension of policymaking: implementation or enforcement.

The differentiation of technical or ideological policy choice and investment in effort to implement or administer policy effectively by agencies (or agents) has been recognized in growing literatures dealing with agency capacity (*e.g.*, Carpenter, 2001; Huber and McCarty, 2004; Ting, 2011)¹⁴ and policy development (Hirsch, 2015; Hirsch and Shotts, 2013, 2014).¹⁵ Studies of agency capacity focus on organization-level investments that lead to the agency having

¹⁴Carpenter (2001) distinguishes an agency’s analytic and programmatic capacities. Analytic capacity denotes the agency’s overall technical expertise or ability to craft policy competently, while programmatic capacity refers to an agency’s ability to effectively implement policy on the ground.

¹⁵Hirsch and Shotts (2013) and Hirsch and Shotts (2014) present models of policy development in which there is both an ideological dimension and a quality or “valence” dimension. The distinction between policy choice and implementation of policy employed in this paper is similar in that higher levels of effort investment produce more precise, or higher quality, outcomes.

a greater ability to produce high quality outcomes. In contrast, studies of policy development focus on individual-level investments in policy-specific quality or valence. The model in this paper, in terms of the composition of policy outcomes, could be naturally interpreted either way. Specifically, agency-made policy is composed of both a technical or ideological policy choice and an effort choice that increases the level of precision with which final policy is implemented. The main focus here is on how a reviewing court affects the effort incentives for bureaucrats implementing policy choices.

Most relevant to this paper are theoretical studies of the impact of judicial review on policy-making. Previous work has identified effects of judicial review on incentives for policymakers to acquire expertise (*e.g.*, Dragu and Board, 2013) as well as policymaking incentives both in electoral environments (*e.g.*, Fox and Stephenson, 2011, 2013) and the bureaucracy (*e.g.*, Bueno de Mesquita and Stephenson, 2007). For instance, Fox and Stephenson (2011) investigate the way in which judicial review affects the incentives of politicians in an electoral environment. They show that judicial review can induce posturing—enacting bold but ill-advised policies—by politicians running for office. This paper investigates the incentives judicial review creates on the effort choices of agencies rather than the policy choice itself. Most closely related to the objective of this paper, Bueno de Mesquita and Stephenson (2007) present a model of bureaucratic oversight in which the agency distributes its effort across observable and unobservable effort that improves the quality of policy. In certain environments judicial review can have a dissuading effect that leads the agency to choose not to regulate. The present paper analyzes the impact of judicial review applied to a different context — administrative policy-making as opposed to an electoral environment — than Fox and Stephenson (2011) and a different focus on the review process — policy already implemented rather than *ex ante* review of a regulation — as in Bueno de Mesquita and Stephenson (2007). Moreover, preference divergence is held constant between the two

actors to isolate the effect of review on the effort decision of the agency specifically. The analysis in this paper serves as a complement to these existing studies by providing further understanding of the impact of judicial review on the administrative process.

Both the way in which judicial review can affect the policymaking process and the way policy is conceptualized in this paper contribute to the applicability of the insights into policymaking in many important policy areas. Distinguishing between policy choices and implementation decisions applies to many areas of public policy that directly affect public welfare—disaster relief policy, environmental permitting decisions, allocation of government assistance, among many others. All of these areas consist of both policy choices—the standards or technical details that dictate how services are provided—as well as case-by-case implementation decisions—provision or denial of housing assistance following a natural disaster, the granting or denial of a permit, the provision or denial of government assistance. In all of these environments the agency designs policy by crafting technical or substantive standards to be met by applicants for the service, verifies that applicants have met the standards laid out in the policy choice itself, then disperses the service if these standards are met and denies it otherwise. Clearly both dimensions matter in terms of the efficacy of realized policy outcomes. If the technical standards embodied in the policy are poorly crafted then the government will inefficiently under- or over-provide services, whereas if the bureaucrats enforcing policy invest insufficient effort toward effectively making the on-the-ground implementation decisions *even when the policy is crafted perfectly* the policy outcomes that obtain will be similarly inefficient.

Judicial review of agency actions plays an important role in terms of relief to those affected by poorly implemented policies. Take as an example the allocation of housing assistance by the Federal Emergency Management Agency (FEMA) following Hurricanes Katrina and

Rita. Evacuees displaced by the natural disasters were required to submit an application for housing assistance to FEMA. In order to reach application decisions FEMA utilized an (essentially) automated computer program that “read” the applications and produced a decision and, if denied, a code denoting the reason(s). Many applicants found the application to be very difficult to understand and the reasoning for denial as well as the process in place to appeal the decision virtually impenetrable. ACORN¹⁶ brought suit in the Federal District Court in Washington D.C. on behalf of housing assistance applicants.¹⁷ It was alleged that the way in which FEMA was reaching application decisions violated applicants’ Due Process rights. The case was explicitly *not* focused on whether FEMA had the power to make these decisions or whether the standards that were to be met to receive assistance were crafted competently. Rather, the entire focus of the case was on the way in which FEMA was *implementing* the policy, *i.e.*, the way in which FEMA was applying the standards to each applicant and reaching application decisions.

Ultimately the court ruled that FEMA had violated applicant rights through the unacceptably low level of effort it invested toward the process of making application decisions. The District Court wrote, “in balancing the increased burden and cost to the government to more fully explain their denials against these first two factors, the increased burden and cost do not begin to outweigh the high private interest of those evacuees facing eviction and the considerable risk of erroneous determinations caused by vague and cryptic explanations” (*FEMA* 2006, 16). Thus, the court explicitly acknowledged that FEMA must invest higher effort while administering emergency housing assistance (*i.e.*, implementing/enforcing policy) and that the lack of effort investment, which led to low policy precision, was the reason

¹⁶Formally known as the Association of Community Organizers for Reform Now.

¹⁷Formally, this case is *Association of Community Organizations For Reform Now (ACORN), et al. v. Federal Emergency Management Agency (FEMA)*, 463 F. Supp. 2d 26 (D.D.C. 2006). I will simply refer to the case as *FEMA*.

FEMA was being remanded. The applicability of judicial review to the implementation of policy *even when all parties agree that the policy itself is acceptably crafted* is clear in this example.

Overall, the theory in this paper contributes to literature on bureaucratic oversight and control by offering a framework that incorporates both policy choices and the implementation of policy, which is affected through agency effort choices. Moreover, this paper contributes to literature examining the virtues (and vices) of judicial review and its impact on the administrative process. The results highlight how judicial oversight of bureaucratic policymaking impacts agency effort incentives even when bureaucratic drift or subversion is not a concern. Specifically, this paper highlights how and when judicial oversight has positive, as well as negative, effects on agency effort incentives.

The remainder of the paper is organized as follows. Section 2 presents a model of policymaking between an administrative agency and a reviewing court. Following presentation of the model, Section 3 presents the equilibrium analysis. Section 4 characterizes when judicial review strengthens or weakens agency effort incentives. The penultimate section discusses several implications for Congressional oversight in light of the results. The final section concludes.

2.2 A Model of Policymaking Between Agencies and Courts

To examine the interactions between bureaucratic agencies and courts in the policymaking process, I model a non-cooperative game between two players: an agency, A , and a court,

C . The game consists of a single period of policymaking where an agency chooses whether or not to invest in high effort, denoted by $e \in \{0, 1\}$ where $e = 1$ means A has invested high effort toward effectively implementing policy and $e = 0$ means A has invested low effort.¹⁸ The agency also chooses a substantive policy target, denoted by x , from a unidimensional policy space, $X = \mathbb{R}$. This choice, x , is understood as a target because final policy outcomes are also conditional on the true state of the world and an implementation shock. The state of the world is denoted by $\omega \in \mathbb{R}$. I assume that ω is drawn according to a cumulative distribution function F_ω that is centered around mean 0 with finite, strictly positive variance $V_\omega > 0$. This variance, V_ω can be understood as the latent policy uncertainty in terms of realized outcomes under the status quo level of agency regulation (or no regulation). Put another way, V_ω encapsulates both the uncertainty regarding where the true state is located along the policy dimension as well as the existing variance of outcomes if the agency were only permitted to continue as they had been prior to taking the new policy action. The implementation shock is denoted by $\varepsilon \in \mathbb{R}$. This shock is conditional on whether A has invested high effort or not and is distributed according to a cumulative distribution function $G_\varepsilon(e)$ with mean 0 and finite, strictly positive variance $V_\varepsilon(e)$. Moreover, the variance of ε when A has invested high effort ($e = 1$) is strictly less than when A has invested low effort ($e = 0$) so that $V_\varepsilon(1) < V_\varepsilon(0)$.¹⁹

After the agency has implemented policy, the court can choose to either uphold or reverse the agency's action. This choice is denoted by $r \in \{0, 1\}$, where $r = 0$ denotes C 's choice to uphold and $r = 1$ denotes a choice to reverse. Following review, the final policy outcome is

¹⁸Modeling effort as binary greatly simplifies exposition of the analysis and results. Continuous effort adds more complicated calculations with very little gain in substantive insight. If effort is continuous, say $e \in [0, 1]$, the court adopts an optimal cut-off rule, say e^* , such that if $e < e^*$ the court overturns and if $e > e^*$ the court upholds. This cut-off polarizes agency effort choice into either no effort, $e = 0$, or the minimal level of effort required to be upheld, e^* , when the agency is constrained by the court. Thus, the results when effort is binary are not qualitatively different.

¹⁹Formally, $G_\varepsilon(1)$ second-order stochastically dominates $G_\varepsilon(0)$.

determined according to the following expression,

$$y = \begin{cases} x - \omega + \varepsilon & \text{if } r = 0, \\ -\omega & \text{if } r = 1. \end{cases} \quad (2.1)$$

If C upholds the policy, then agency-made policy is realized ($y = x - \omega + \varepsilon$). If the court remands, then the final outcome is $y = -\omega$. After this process—Nature’s choice of ω , agency effort and policy choices, and judicial review of the agency—the game ends and payoffs are realized. The timing of the game, then, is as follows.

1. Nature draws $\omega \in \mathbb{R}$ according to F .
2. The Agency chooses to invest high effort, $e = 1$, or not, $e = 0$.
3. The Agency observes ω and sets policy, $x \in \mathbb{R}$.
4. The Court reviews the Agency and chooses to uphold $r = 0$ or reverse $r = 1$.
5. The game ends, final policy is set, and payoffs are realized.

Payoffs. The payoffs for A and C are given by,

$$\begin{aligned} u_A(e, y, r) &= -\beta(y - t_A)^2 - \kappa e - \pi r, \\ u_C(e, y, r) &= -(y - t_C)^2, \end{aligned}$$

where $t_A \in \mathbb{R}$ and $t_C \in \mathbb{R}$ reflect the agency and court’s ideal points (or “types”), respectively. A ’s payoff is conditional on its level of policy motivation $\beta \geq 0$ and the distance of policy from it’s ideal point (t_A), effort costs $\kappa \geq 0$ and the choice of effort level $e = \{0, 1\}$, and

the level of aversion to being overturned $\pi \geq 0$. The parameters of the problem, β , κ , and π are exogenous and common knowledge. The court is solely concerned with final policy outcomes. Specifically, the court loses utility proportional to the distance between policy and its ideal point, t_C .

In this paper I will assume throughout that t_A and t_C are both equal to 0. Thus, the agency is perfectly faithful (*i.e.*, the agency and the court share the same ideal policy outcome). The game then reflects one of common value policymaking between the agency and the court. I make this assumption to focus on the role that judicial review plays in affecting agency incentives *even when bureaucratic drift or subversion is not an issue*. Existing work has identified why oversight of a policymaking agent is beneficial (and problematic) when preference divergence is present (*e.g.*, Epstein and O'Halloran, 1994; Gailmard and Patty, 2013*b*; Huber and Shipan, 2002; Wiseman, 2009). It is less clear, however, why review of agency actions is important when both actors agree on the correct policy choice. In short, this assumption allows for the presentation of results that isolate the effect of judicial review on the agency's incentives to work hard.²⁰

Since $t_A = t_C = 0$, C is concerned with A 's policy target x matching ω as well as the limiting of errors in implementation of policy captured by ε . C is always better off if A invests high effort (as is A *ceteris paribus*). Thus both actors agree on the "correct" policy choice as well as the desirability of more precise policy outcomes. However, only A internalizes the cost of effort that increases the precision of agency-made policy.

Information and Policymaking. A and C are forced to confront the uncertainty inherent in policymaking. This uncertainty is captured in the distributions of ω and ε . Recall that

²⁰Given the set-up of the payoff functions one could easily extend the analysis to any environment with divergent preferences between the two actors. I leave this possibility for future work.

ω is distributed according to F_ω with mean 0 and variance V_ω . A observes the realization of ω after the choice of e . Thus, A 's choice of effort, e , is a sunk cost once the choice is made. After x is chosen by A , ε is realized according to $G_\varepsilon(e)$. Both A and C know that an agency choice of high effort ($e = 1$) will reduce $V_\varepsilon(e)$ and produce more precise policy. So, A , after choosing e , observes ω , chooses x , ε is realized, and y is generated according to Equation 3.1. The only information C uses when choosing $r \in \{0, 1\}$ are beliefs over A 's policy choice strategy and the levels of variance associated with upholding or remanding A 's actions, which is further conditional on A 's choice of e . So C does know the choice of e , but does *not* observe x , ω , or ε . However, C does have (in equilibrium, correct) beliefs regarding A 's choice of x and knows F_ω and $G_\varepsilon(e)$ and, thus, also knows V_ω and $V_\varepsilon(e)$.

Strategies and Equilibrium Concept. The equilibrium concept is Perfect Bayesian Equilibrium (PBE) in weakly undominated strategies. A 's strategy consists of a probability of investing high effort, $e = 1$, which is denoted by $s_A^e \equiv Pr[e = 1]$, and a policy mapping conditional on the realization of ω denoted by $s_A^x(\omega) : \mathbb{R} \rightarrow \mathbb{R}$. C 's review strategy consists of a mapping from the set of agency effort levels and the potential policy outcomes into a probability of reversing policy set by A , denoted by $s_C(e) : \{0, 1\} \times \mathbb{R} \rightarrow [0, 1]$ and holds for any agency effort level $e \in \{0, 1\}$ and potential policy outcome $y \in \mathbb{R}$. C also has beliefs over ω and ε that are represented by μ_C , a cumulative distribution function that represents a probability distribution over ω and ε . A PBE is a complete profile of strategies and beliefs $\rho = (s_A^e, s_A^x, s_C, \mu_C)$ such that A and C are maximizing their expected payoffs given the other player's strategy and, when applicable, C 's beliefs are consistent with Bayes's rule.²¹

²¹These beliefs will be completely pinned down by Bayes's rule given the set-up.

2.3 Agency Policymaking, Effort, and Judicial Review

In this section, I analyze A 's effort strategy, policymaking strategy, and C 's optimal review strategy. The analysis proceeds by working backward from C 's review choice. After considering C 's decision to uphold or overturn A 's action (r), we then turn to A 's effort (e) and policy (x) choices. In the analysis that follows I denote C 's equilibrium review strategy with $s_C^*(e)$, A 's equilibrium effort strategy as s_A^{e*} , and A 's equilibrium policymaking strategy as $s_A^{x*}(\omega)$.

Equilibrium Judicial Review. C faces the decision of whether to uphold ($r = 0$) or overturn ($r = 1$) agency-made policy. Recall that C does not observe x (or ω and ε). Thus, in equilibrium, the court employs an optimal review strategy conditional on its beliefs about A 's policy choice and the relative uncertainty associated with upholding policy by either a high- or low-effort agency and remanding policy. If C reverses ($r = 1$) then the final policy outcome is $-\omega$. Thus, C 's subjective expected payoff when it remands policy is given by,²²

$$U_C(r = 1; \rho_{-C}) = -V_\omega.$$

C can expect to receive a payoff (loss) equal to the variance of ω . This is akin to the court choosing to maintain the status quo level of agency regulatory actions. If the court chooses to reverse the current agency policy actions then it can expect the outcomes, including any status quo agency actions, that were being obtained prior to the present actions of the agency. C 's subjective expected payoff for upholding A 's action is conditional on the expectation of policy realization given A 's effort level choice e , the expected distance between A 's policy

²²Throughout I employ the notation, U_i , to denote the expected utility of the players, $i \in \{A, C\}$.

target x and the state of the world ω , and the expected variance associated with A 's choice of x . This expected payoff is given by

$$\begin{aligned} U_C(r = 0; \rho_{-C}) &= -V_\varepsilon(e) - E_{\mu_C}[x - \omega]^2 - V_{\mu_C}[x - \omega], \\ &= -V_\varepsilon(e) - E_{\mu_C}[x - \omega]^2 - V_{s_A^x}[x - \omega]. \end{aligned}$$

Put simply, C 's expected payoff if it upholds A is dependent on its beliefs about the error that will occur in implementation. C *ex ante* expects to lose utility equal to the variances of implementation precision ($V_\varepsilon(e)$) and the choice of x relative to ω by A , and the expected distance between the target policy x and ω . If C believes the variance associated with allowing A 's action to stand is weakly better than reversing the policy and allowing $-\omega$ to obtain then it chooses $r = 0$ and upholds the policy and chooses $r = 1$ and overturns A otherwise. Moreover, the next section verifies that A will always set policy equal to the state of the world (*i.e.*, $x = \omega$) and therefore C 's equilibrium review strategy is characterized by the following Lemma:²³

Lemma 1. *C 's equilibrium judicial review strategy is given by the following expression:*

$$s_C^*(e) = \begin{cases} \text{uphold: } r = 0 & \text{if } V_\varepsilon(e) \leq V_\omega, \\ \text{remand: } r = 1 & \text{if } V_\varepsilon(e) > V_\omega. \end{cases} \quad (2.2)$$

Similar to a standard of judicial review of agency actions suggested in extant literature (*e.g.*, Stephenson and Vermeule, 2009), C 's equilibrium strategy $s_C^*(e)$ illustrates the court's desire to ensure that an agency is implementing policy as effectively as possible. Further, this suggests that courts, in many applicable environments, are largely concerned with limiting the

²³Formally, this is because if $s_A^{x*}(\omega) = \omega$ then $E_{\mu_C}[x - \omega]^2 = V_{s_A^x}[x - \omega] = 0$.

likelihood of errors in policy implementation. If the variance associated with agency promulgated policy is higher than the latent uncertainty associated with allowing ω to obtain then the court overturns. If the agency has taken advantage of their administrative experience and provided sufficient effort ($e = 1$) then the court is more likely to uphold the agency's policy promulgation. Put simply, C wants to limit the variance associated with realized policy outcomes, which increases policy precision and reduces the likelihood of errors in the actual implementation of policy.

This is directly related to the explicitly stated reason for remanding FEMA policy by the District Court in the example discussed in the introduction. The court was not satisfied with the way in which FEMA was implementing housing assistance policy. The court remanded the case with instructions for FEMA to invest in a (costly) higher level of effort to provide evacuees with more informative denial letters. This dynamic is captured by the equilibrium strategy of C presented above. In the terminology of the model, the court observed that FEMA's choice of effort was equal to $e = 0$ and $V_\varepsilon(0)$ was greater than V_ω . In line with the best response function above, the court chose $r = 1$ and remanded the case back to the agency. In short, the court found that policy was not being implemented by FEMA with sufficient precision and the likelihood of implementation errors that resulted was not acceptable. With the court's equilibrium behavior characterized we can move to equilibrium agency decision making.

Equilibrium Agency Policymaking. A has two distinct choices. First, A chooses whether or not to invest in high effort when implementing policy. Then, after observing ω , A sets policy by choosing x . As alluded to in the previous section, A always chooses $x = \omega$ in equilibrium, which is given by the following result.

Lemma 2. *A is always weakly better off choosing $x = \omega$ regardless of C's strategy (i.e., the strategy $s_A^{x*}(\omega) = \omega$ is weakly dominant).*

As a simple verification of this point, recall that A's payoff function is $u_A = -\beta y^2 - \kappa e - \pi r$.²⁴ Thus, the policy component of A's utility, $-\beta y^2$, is separable from the other components of the function. Expanding that out gives a policy component of $-\beta(x - \omega + \varepsilon)^2$, which makes clear that for any level of $\beta \geq 0$ A is weakly better off choosing $x = \omega$ regardless of the rest of the payoff function or C's review strategy (i.e., deviating from $s_A^{x*}(\omega) = \omega$ is a weakly dominated strategy).

The other, and potentially very important, choice by A is whether to invest in high effort. Note that in the equilibrium constructed above, A's choice of x is not dependent on e . C's decision of r , however, can be influenced by the choice of e by A. There are three cases to investigate, given C's equilibrium review strategy, whether A will invest high effort and pay cost κ or choose low effort. These situations are characterized by the relative size of the variances associated with agency policymaking by a high effort agency ($V_\varepsilon(1)$), a low effort agency ($V_\varepsilon(0)$), and the latent variance of unregulated or overturned policy outcomes (V_ω). The ordering of these variances dictates how C will behave given $s_C^*(e)$, which in turn affects A's equilibrium effort choice, s_A^{e*} . These orderings can be intuitively thought of as representing three different court regimes that the agency can face in the policymaking process. If $V_\omega < V_\varepsilon(1) < V_\varepsilon(0)$ the agency is facing a court that will always strike down its actions: a *Perfectly Skeptical Court*. If $V_\varepsilon(1) < V_\varepsilon(0) < V_\omega$ the agency is facing a court that will always uphold its actions: a *Perfectly Deferential Court*. Finally, if $V_\varepsilon(1) < V_\omega < V_\varepsilon(0)$ the agency is facing a court that will uphold A's actions if and only if A invests high effort

²⁴This includes the assumption that $t_A = 0$.

while implementing policy: a *Conditional-Deference Court*. These three court regimes lead to the following proposition.

Proposition 1. *The following characterizes Agency effort choices conditional on Court regime:*

- (a) *when facing a **Perfectly Skeptical Court** the Agency will never invest high effort;*
- (b) *when facing a **Perfectly Deferential Court** the Agency will invest high effort if and only if it would absent any prospect of judicial review (i.e., $e = 1$ if $\beta(V_\varepsilon(0) - V_\varepsilon(1)) \geq \kappa$);*
- (c) *when facing a **Conditional-Deference Court** the Agency will invest high effort if it is sufficiently policy motivated and averse to being overturned such that effort costs are outweighed (i.e., $e = 1$ if $\beta(V_\omega - V_\varepsilon(1)) + \pi \geq \kappa$).*

First, consider the policy environment in which A is facing a *Perfectly Skeptical Court* (i.e., $V_\omega < V_\varepsilon(1) < V_\varepsilon(0)$). In this environment C will always choose $r = 1$ and reverse A . This choice holds in equilibrium regardless of A 's choice of e . This result represents a situation in which A only lowers the level of policy precision by taking action. Final policy is better off if A does not take any action and allows the status quo to stand (or more precisely, allows $-\omega$ to obtain). C always strikes down A 's actions in this environment. Thus, the agency will never invest high effort.

An illustrative empirical example of this situation is the strict scrutiny standard applied to many free expression cases. Fallon (2006) writes that “courts applying strict scrutiny must ask whether the benefits justify the costs in light of regulatory alternatives that would trench less deeply on constitutional rights but also be less effective in promoting their goals”

when applying the standard to challenged regulations. The basic understanding of many is that strict scrutiny is “‘strict’ in theory and fatal in fact” (Gunther, 1972). Previous work has suggested that the application of strict scrutiny is akin to the Court signaling that the particular governmental action under review is invalid (see *e.g.*, Rubin, 2000). Essentially the Court utilizes a standard like strict scrutiny to strike down actions regardless of the way that the particular action is being implemented. Proposition 1 part (a) provides a potential rationale for the creation and support of a standard of this sort.

Next, consider the policy environment where A faces a *Perfectly Deferential Court* (*i.e.*, $V_\varepsilon(1) < V_\varepsilon(0) < V_\omega$). In contrast to part (a) of Proposition 1, A *will* invest high effort in the equilibrium characterized by part (b) of Proposition 1 if the relevant conditions are met. However, the high effort investment ($e = 1$) is not at all conditional on C ’s equilibrium review strategy, $s_C^*(e)$. The only time A will pay the cost κ to invest high effort is when it would have paid this cost absent any system of judicial review. Put another way, A invests high effort in this environment solely based on its own policy motivations and the increase in policy precision that comes from high effort outweighing the cost of that investment. Formally, the condition states that A will choose $e = 1$ if $\beta(V_\varepsilon(0) - V_\varepsilon(1)) \geq \kappa$. It is clear that the likelihood of A choosing $e = 1$ is increasing in β as well as $(V_\varepsilon(0) - V_\varepsilon(1))$. This is intuitive; as the benefits derived from increased levels of policy precision increase, the likelihood of A choosing to bear the cost, κ , of investing high effort increases as well.

This environment is illustrative for policy areas in which agencies generally enjoy high levels of judicial deference. In particular, the ordering of the variances, $V_\varepsilon(1) < V_\varepsilon(0) < V_\omega$, represent policy areas in which the understanding of where to set policy takes precedence over the implementation of policy. C always defers to agency-made policy because the uncertainty associated with the correct policy choice elevates A ’s technical expertise to the point

of swamping concerns over the implementation of policy. That is, the information asymmetry with respect to the underlying correct policy is great enough that C cannot credibly commit to reversing A 's actions based on effort.²⁵ This result is in line with the fact that courts are generally reticent to overturn agency actions on the basis of the agency's technical policy choices (*e.g.*, Kagan, 2001; Stephenson, 2006). Outcomes are so uncertain without agency intervention that even at low effort levels the agency improves upon what, in expectation, obtains otherwise. In this way, the model incorporates and provides a foundation for understanding when agencies will be granted what appear to be abnormally high levels of deference.

Finally, consider the policy environment characterized by A facing a *Conditional-Deference Court* (i.e., when $V_\varepsilon(1) < V_\omega < V_\varepsilon(0)$). Part (c) of Proposition 1 describes A 's behavior when the choice of e is dispositive with respect to judicial deference. We see that A invests in high effort if the reduction of variance in implementation outcomes is sufficiently large relative to the latent variance of policy outcomes in agency-free settings. Subsequently, the likelihood that A chooses $e = 1$ is increasing in β , $(V_\omega - V_\varepsilon(1))$ and, in contrast to facing a *Perfectly Deferential Court*, π . Put simply, A will invest high effort only if the benefits derived from increased policy precision ($\beta(V_\omega - V_\varepsilon(1))$) and not being reversed by C (π) outweigh the costs of investing the effort necessary to obtain these benefits (κ). As long as that condition is met, A will invest high effort toward implementing policy effectively and C will uphold A 's policy choice. The presence of judicial review plays an integral role in inducing high effort from the agency by lowering the net cost of effort. The specter of losing

²⁵This raises another interesting question regarding when courts *can* commit, *ex ante*, to standards that allow them to overcome commitment problems such as this. For instance, Stephenson (2008a) presents a model that illustrates how courts can incentivize agency research in support of policy actions by committing, *ex ante*, to evidentiary standards. Stephenson characterizes when different *ex ante* commitments are optimal. While this is certainly an important and interesting vein of research I, in contrast, am considering a world in which the court has been mandated to review the agency actions in question and the incentive effects that arise in such an environment, *e.g.*, by Congressional statutory language or the like.

out on the added benefit of not being remanded, π , reduces the threshold necessary for the benefits derived from investing high effort to outweigh the cost paid for that effort, κ . This is also arguably the most empirically interesting equilibrium result emanating from analysis of the model because it is the most realistic environment in many policy areas.

Recall that the District Court chose to reverse FEMA precisely because they had not invested sufficient effort to implement policy effectively. Implicit in the decision is the fact that if FEMA had invested high effort—for instance, if FEMA had already been generating intelligible letters of acceptance or denial to disaster relief applicants—perhaps the court would not have reversed FEMA. In this way, FEMA’s effort level was dispositive with respect to the District Court’s deference to their actions. Both parties wanted disaster relief provided, but FEMA was implementing policy such that there were unduly high levels of error due to low effort investments and the court had to remand.

Overall, the results embodied in Proposition 1 provide several insights into the role that judicial review can play in the policymaking game between agencies and courts. Even in the relatively extreme regimes, parts (a) and (b) of Proposition 1, the model provides a rationale for strict scrutiny standards as well as a foundation for understanding why agencies operating in certain policy areas may receive what appear to be abnormally high levels of judicial deference. In the case of part (c) of Proposition 1, we see that judicial review can directly induce desirable behavior from bureaucrats by lowering the cost of high effort for agency policymakers. The bureaucrat works harder because the aversion to being overturned, coupled with a sufficiently high level of policy improvement, justifies paying the effort costs. This suggests that even when agencies are not “drifting” or trying to subvert the policy wishes of those who oversee their actions, judicial review, as an institution, can improve welfare by indirectly increasing the precision with which policy is ultimately implemented.

However, the way in which judicial review impacts agency effort when implementing policy is not unconditional. In the environment where agency policy actions are upheld if and only if high effort is expended in implementing policy, *i.e.*, the environment in part (c) of Proposition 1, there are three possibilities for how the presence of a court with the power to overturn the agency affects agency effort incentives: it can have no impact and the agency either always invests low effort or always invests high effort; it can strengthen the incentives for the agency to invest high effort; or it can harm the incentives for the agency to invest high effort. The next section provides analysis that, when the agency is facing a conditional-deference court, characterizes the effect of judicial review on agency effort incentives.

2.4 Judicial Review, Incentives, and Agency Effort

This section examines the impact of judicial review on bureaucratic effort incentives. Specifically, I assess how the policymaking system is affected by the introduction of judicial review of agency policy actions. The results below highlight the differential impact judicial review can have on the incentives for agencies to make high effort investments to improve implementation or enforcement of policy.

Judicial review may have no impact on the agency's effort choice. This is true anytime effort costs are either too high or too low. In these environments the agency either always invests high effort (costs too low) or is deterred from investing high effort by prohibitively high effort costs. When judicial review does affect agency effort choices it can have two effects. The first represents a desirable trait of subjecting agency actions to judicial review. In this environment the presence of judicial review induces the agency to invest high effort toward implementing policy when it would not have otherwise. However, there is also the possibility

of an undesirable role for review. In this case the introduction of judicial review of agency policy actions actually induces the agency to invest low effort when it would have invested high effort if there were no judicial review of its actions. This effect is predicated on the court's ability to bail out the agency. The following proposition characterizes when these possible effects obtain.

Proposition 2. *When costs of effort are either too low or too high judicial review has no effect on agency effort investment. Otherwise, judicial review strengthens effort incentives if the policy cost of implementing low effort policy relative to the reversion are less than the agency's aversion to being overturned and harms them otherwise (i.e., $e = 1$ if $\beta(V_\varepsilon(0) - V_\omega) < \pi$).*

Proposition 2 presents the conditions that must be met in order for judicial review—when it does have an impact—to strengthen agency effort incentives. First, recall that this is an environment in which the agency is facing a conditional-deference court so $V_\varepsilon(1) < V_\omega < V_\varepsilon(0)$. When costs are intermediate, and therefore judicial review does impact agency effort choices, the policy cost of implementing low effort policy relative to the reversion level of precision must be outweighed by the agency's aversion to being reversed by the court. As the level of reversion precision, V_ω , approaches the precision associated with low effort agency-made policy, $V_\varepsilon(0)$, judicial review is more likely to incentivize high effort investment when the agency would have invested low effort absent review. This is because the policy precision improvement for high effort investments relative to the reversion level of precision is growing as V_ω increases and the agency's aversion to being overturned, coupled with this policy improvement, is large enough to outweigh the costs of high effort. Similarly, holding policy improvements fixed, increasing the level of agency aversion, π , and/or the level of agency policy motivation, β , increases the likelihood that the presence of judicial review will

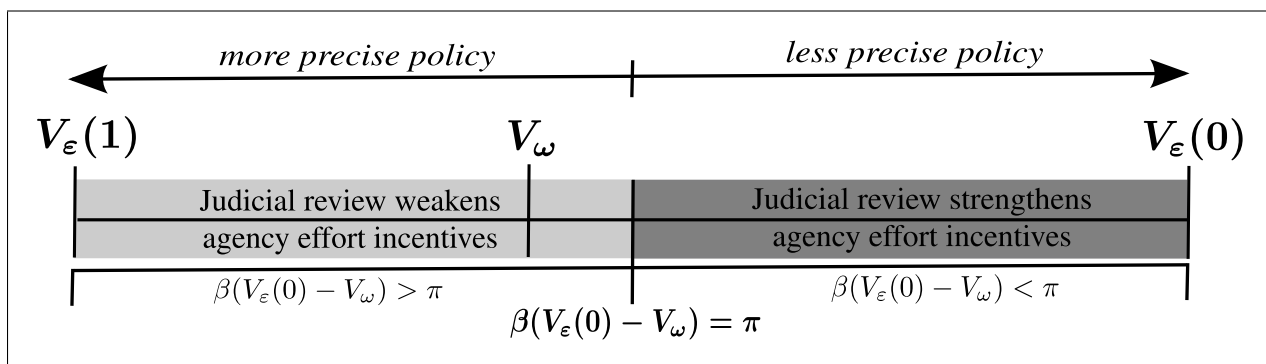


Figure 2.1: An Example in which Judicial Review Weakens Agency Effort Incentives.

strengthen agency effort incentives. The dynamics of the relationships between the possible levels of policy precision are presented graphically in Figure 2.1.

In Figure 2.1 the cut-point, $\beta(V_\epsilon(0) - V_\omega) = \pi$, represents the point at which the policy cost of implementing low effort policy relative to the status quo (scaled by policy motivation) is equal to the agency's aversion to being overturned. Assuming effort costs are neither too low nor too high and holding β , $V_\epsilon(0)$, and π fixed, as V_ω decreases $\beta(V_\epsilon(0) - V_\omega)$ increases, outweighing π . Conversely, as V_ω increases $\beta(V_\epsilon(0) - V_\omega)$ decreases and is outweighed by π . In the figure V_ω is located below the cut-point ($\beta(V_\epsilon(0) - V_\omega) = \pi$) and, therefore, represents a situation in which the presence of judicial review will deter the agency from investing high effort even when it would have preferred, based on its own policy motivations, to invest high effort were review not a concern. Essentially, the relative policy precision improvement from high effort agency-made policy relative to the status quo reversion precision level dictates whether judicial review incentivizes or deters agency effort investment.

If the difference between the policy precision that would obtain sans agency action (*i.e.*, if the agency is reversed by the court) and high effort agency-made policy is relatively large— V_ω approaches $V_\epsilon(0)$ —then judicial review induces high effort when the agency would

have invested low effort absent review. However, if V_ω is relatively close to $V_\varepsilon(1)$ —denoting marginal policy precision improvement for high effort policymaking—then judicial review deters high effort investments from the agency through a bail out effect. Since the policy precision improvement for investing high effort is marginal and the agency knows that if it invests low effort the court will reverse them, thereby allowing V_ω to obtain, the agency is deterred from high effort investments to forego paying effort costs. That is, the presence of judicial review takes the extremely imprecise policy outcome, $V_\varepsilon(0)$, off the table by providing a sort of policy insurance through the assurance of, at worst, V_ω and since $V_\varepsilon(1)$ is only marginally more precise than this possibility the agency chooses to invest low effort and be reversed rather than pay the effort costs, κ .

The locations of $V_\varepsilon(1)$, V_ω , and $V_\varepsilon(0)$ relative to one another have a natural substantive interpretation in the realm of administrative policymaking. Namely the location of V_ω relative to $V_\varepsilon(1)$ and $V_\varepsilon(0)$ can be understood as representing how much the agency is needed to regulate effectively in a given policy area. If V_ω is closer to $V_\varepsilon(0)$ relative to $V_\varepsilon(1)$ then the status quo environment—whether understood as unregulated or at some status quo level of agency actions—is highly uncertain. Even though low effort implementation by the agency would worsen the situation marginally, high effort policy implementation by the agency would improve outcomes greatly. In this situation agency action is integral to improving policy. Conversely, if V_ω is close to $V_\varepsilon(1)$ relative to $V_\varepsilon(0)$ then the status quo environment is pretty good and uncertainty in outcomes is relatively low. Low effort agency policy would worsen outcomes greatly but the presence of judicial review insures against that possibility. Even though high effort implementation would marginally improve policy precision the agency is not needed in terms of new policy actions as much as in the environment with high status quo policy uncertainty. The location of V_ω in the interval between agency-made—high and low effort—policy dictates the relative level of complexity or uncertainty present

in the status quo policy environment. Thus, judicial review is most useful in incentivizing high agency effort precisely when the policy environment is highly uncertain in terms of realized outcomes. These results point to implications for the structure and understanding of Congressional oversight.

2.4.1 Implications for Congressional Oversight

This section fleshes out implications for Congressional oversight in light of the results presented above. The discussion is suggestive of both implications for structuring of administrative procedures like judicial review provisions in authorizing legislation as well as the use of oversight hearings directed at agency actions. Both implications are intimately connected to the structure of the underlying policy environment that the agency is acting within. In particular, whether the status quo level of policy precision is more or less uncertain, which further illustrates when agency action is more or less necessary for effective policy implementation. From a legislative perspective, Congress may have the ability to affect the level of aversion the agency has to having its policy actions overturned, π , through oversight decisions. This brings a classic literature examining the structure of administrative procedures (*e.g.*, Bawn, 1995; McCubbins, Noll and Weingast, 1987, 1989) as well as bureaucratic control through direct Congressional oversight (*e.g.*, Bawn, 1997; McCubbins and Schwartz, 1984; Shipan, 2004) back to the forefront in the realm of agency effort incentives when effective implementation, rather than ideological subversion, is the primary concern. That is, the effort incentive effects of judicial review discussed in the previous section have implications for the usage of both police patrols and fire alarms for bureaucratic oversight and control (Aberbach, 1990; Ferejohn and Shipan, 1990; McCubbins and Schwartz, 1984).

The effectiveness of ex post oversight in terms of its ability to strengthen agency effort incentives is conditional on the underlying policy environment. In particular, in environments where the status quo level of precision is quite low (near $V_\varepsilon(0)$ in Figure 2.1) ex post oversight mechanisms like judicial review or oversight committee hearings are effective in inducing higher levels of agency effort than would otherwise be obtained absent that type of oversight. Possibilities for strengthening oversight in this environment include lowering standards for citizens or other affected parties to challenge agency actions in federal courts in these policy areas while crafting provisions in authorizing legislation or, if we substitute a Congressional oversight committee for the court in the model, increasing the overall level of oversight hearings held in which the agency must defend its policy actions to Congressional committees with the power to cut agency funding, contract agency policy jurisdiction, or the like. These types of Congressional oversight activities, in the terminology of the model, increase the agency's aversion to having its actions reversed (*i.e.*, increases π). The results suggest that Congressional action along these lines will serve to strengthen the desirable effort incentive effects that judicial review (or other ex post monitoring) can produce.

Conversely, in policy areas in which the agency, given high effort investment, only marginally improves the precision of realized outcomes crafting provisions that insulate agency actions from judicial scrutiny in these areas may be desirable to avoid the bail out effect that ex post review can induce. Similarly, considering Congress as the overseer, allowing the agency to operate without continuously being brought in to justify its actions in front of oversight committees allows Congress to directly lower the agency's concern with being overturned (π) by effectively taking veto possibilities off the table.

The level of oversight that is optimal from the Congressional perspective given the effects identified in this paper depends crucially on the structure of the underlying policy environment. In some policy areas agencies are best incentivized by subjecting them to strong forms of oversight in which their actions may be overturned on a regular basis while in other areas agencies ought to have their policy actions insulated from judicial (or Congressional) scrutiny to avoid the perverse bail out effect ex post oversight may introduce. These implications highlight how the results of the analysis in this paper are directly related to several other important aspects of the American policymaking process as well as a potentially fruitful next step in extending the framework.

2.5 Conclusion

This paper provides a theory of policymaking between administrative agencies—empowered to choose and implement policy—and courts—empowered to review and potentially invalidate agency actions. The results highlight the multifaceted impact an ex post review mechanism such as judicial review can have on the effort incentives for agencies to invest high effort when implementing policy. These effects are characterized without appeal to ideological policy preference divergence between the agency and the court. Thus, the effects of judicial review discussed in this paper apply exclusively to the effort invested toward improving policy implementation. At times judicial review can provide strong ex ante incentives for the agency to invest high effort when it would not have otherwise through the threat of ex post reversal. This leads to more precise policy outcomes. However, in other environments judicial review can lead to perverse incentive effects by providing a bail out effect for the

agency. In that case the presence of judicial review deters high implementation effort and leads to imprecisely enforced outcomes.

In short, while judicial review can be a powerful institutional tool for incentivizing administrative agencies to invest in high policy effort, this is not unconditional. The theory provides insight into how and when we may expect review of agency actions to produce better or worse final policy outcomes. This leads to implications for how legislative decisions regarding different choices of review provisions in authorizing legislation or the frequency of oversight hearings, for example, may be affected conditional on the structure of the underlying policy environment.

Ultimately, this general line of inquiry holds promise to further our understanding of political agency problems such as oversight of policymakers by courts and when this system is welfare-enhancing in terms of policy outcomes. Research similar to the route taken in this paper, combined with research examining the impact of judicial review on democratic performance (*e.g.*, Fox and Stephenson, 2011, 2013), the importance of differentiating between substantive policy choice and implementation in bureaucracy (*e.g.*, Carpenter, 2001; Huber and McCarty, 2004; Ting, 2011), a more realistic conceptualization of policymaking as inherently uncertain (*e.g.*, Callander, 2008, 2011*a,b*), incorporating studies of oversight from multiple angles (see *e.g.*, Strayhorn, Carrubba and Giles, forthcoming), and the additional consideration of both policy choice and investment to improve the quality of policy (*e.g.*, Hirsch and Shotts, 2013, 2014) can provide a clear path forward to more realistically assess the effects of institutions such as judicial review on the complicated inter-institutional policymaking processes of the American political system.

Chapter 3

Reviewing Procedure vs. Judging Substance: The Differential Effects of Judicial Review on Agency Policymaking

3.1 Introduction

Most public policy in the United States is developed and implemented by the federal bureaucracy. Moreover, most public policy made by the bureaucracy is subject to judicial review. As such, courts play an integral role in the national policymaking process. The Administrative Procedures Act of 1946²⁶ (APA) laid the groundwork for judicial review of administrative agency actions. Under its guidance courts are directed to overturn agency actions found to be “arbitrary and capricious” (Breyer, 1986). Additionally, Congress explicitly writes rules governing judicial review of agency actions into regulatory legislation that supersede the

²⁶5 USC 551.

baseline set by the APA (Smith, 2005).²⁷ By subjecting policymaking agencies to judicial scrutiny Congress can utilize administrative procedures — like judicial review provisions — to monitor agency activity (Bawn, 1995; McCubbins and Schwartz, 1984; McCubbins, Noll and Weingast, 1987, 1989). Congress can specify rules governing citizens’ abilities to challenge agency actions in court (Smith, 2005, 2006), which courts have jurisdictional authority over which agency actions (Chutkow, 2008), and even which agency actions are subject to, or precluded from, judicial scrutiny and what *type* of judicial review courts are directed to employ (Shipan, 1997). All of these choices can either strengthen or weaken the impact of judicial review on agency policymaking (Shipan, 2000). That is, Congress can specify, through the crafting of judicial review provisions, *how* courts fulfill their role in the system by specifying the scope of review across regulatory actions (Shipan, 1997). The scope of review specifies what aspects of agency policymaking are to be reviewed. This paper focuses on two possible aspects of agency actions that can be specified as reviewable: procedure and substance.

Reviewing procedure entails the court observing the ex ante effort investments made by the agency that help to ensure high quality implementation or enforcement of policy whatever the substantive content. Low effort in the application of policy increases the likelihood of policy distortions even when the agency is making substantive policy choices faithfully. For example, effort could represent an agency’s investment in research that allows it to better understand the contingencies of the policy environment with respect to translations of policy choices into outcomes. Alternatively, it could be simply amassing a record that illustrates that all procedures (often set by the agency itself) have been followed, which in turn improves the agency’s ability to effectively put policy into practice. In contrast, substantive

²⁷Most if not all pieces of authorizing legislation contain a ‘judicial review provisions’ section that lays out who can challenge agency actions (or not), what actions are subject to review (or not), and the like.

review includes observation of not only the agency's effort investment but also the agency's substantive policy choice. In this case courts render a judgement of the actual substantive content of policy. This relates to the general idea that courts can play an integral role in ensuring that bureaucrats are setting policy that does not subvert the wishes of their political principals, such as Congress (*e.g.*, Epstein and O'Halloran, 1999). The question, then, is whether courts with the power to review and potentially invalidate administrative agency policy actions can affect agency policymaking behavior while crafting and implementing policy and, if so, when and how? I show that judicial review affects agency policymaking incentives — both policy choices and effort choices — differently depending on which policy actions the court observes.

In recent years courts reviewing administrative actions have moved more toward reviewing procedural issues than the substantive content of agency-made policy (see *e.g.*, Kagan, 2001; Stephenson, 2006). One reason for this shift may be that courts are at an increasingly distinct informational disadvantage relative to administrative agencies in terms of understanding what the correct technical policy choice is given the underlying, and often exceedingly complex, policy environment. In this regard courts reviewing what they know better, procedure, rather than that with which they are at a disadvantage, substance, makes intuitive sense. However, it does raise the question as to whether courts can still provide the sort of ex post ideological policy monitoring past work has suggested they might. Existing work has provided insight into how reviewing court's may impact agency effort decisions while at an informational disadvantage (Bueno de Mesquita and Stephenson, 2007; Turner, 2014b) and the work cited above has shown that court's can help control agency's ideologically (see also *e.g.*, Huber and Shipan, 2002). But the question remains: what are the differential effects of judicial review on policymaking incentives of agencies across different types of review? Of

particular interest in this paper: what are the differential effects on agency policymaking when the court reviews procedure versus judges substance?

This paper provides a theory of interactions between administrative agencies and courts. Specifically, through analysis of two variants of a formal model, I investigate how courts with the power of judicial review can influence how administrative agencies choose and implement policies. Policy is composed of both an agency policy choice and an implementation component, the precision of which is conditional on the effort investment of the agency.²⁸ The agency, thus, makes two choices: where to set policy relative to an underlying policy target and whether to invest high (or low) effort to improve the execution of policy in practice. Following the agency's choices a court reviews the agency's action and chooses to uphold or reverse the agency. The court, then, effectively has a veto over the agency's policy actions.²⁹

In the procedural review model the court only observes the agency's effort investment. This is akin to the court reviewing procedure. Reviewing the effort level of the agency represents many situations of interest in administrative law such as how agencies are reaching permitting decisions, granting or denying government aid, or providing disaster relief to citizens. In these cases the court is not judging the technical or substantive content of the agency's policy, but rather it is reviewing the procedures through which the agency enforces the policy in practice. If the agency has not invested sufficient effort, which leads to higher likelihoods of erroneous policy applications, then the court reverses the agency. In terms of the agency's substantive policy choices, due to the informational asymmetry that exists between the

²⁸This distinction between designing and implementing policy is one that has been recognized in a growing literature examining agency capacity (*e.g.*, Carpenter, 2001; Huber and McCarty, 2004; Ting, 2011). For instance, Carpenter (2001) distinguishes an agency's analytic and programmatic capacities. Analytic capacity denotes the agency's overall technical expertise or ability to *craft* policy competently, while programmatic capacity refers to an agency's ability to effectively *implement* policy on the ground. Another way of thinking of this distinction is the "street-level bureaucracy" point of view (Lipsky, 1980).

²⁹This process is related to a family of models examining agent retention (*e.g.*, Banks and Sundaram, 1993, 1998; Van Weelden, 2013).

agency and court, the agency always sets policy sincerely, *i.e.*, at its ideal point. However, the court can impact the agency's equilibrium level of effort investment aimed at improving enforcement. The results highlight the differential effects that procedural review can have on agency effort incentives. At times, the court can induce the agency to invest high effort when it would not absent procedural review. However, at other times, the court induces the agency to shirk and make low effort investments when it would otherwise invest high effort based on its own motivations. This is a perverse incentive effect in which the court provides a sort of policy insurance for the agency thereby weakening effort incentives.

In contrast, under the substantive review model the court observes both the agency's substantive policy choice and effort level. This proxies the court judging the substantive content of policy. The increased level of information available to the court under the substantive review model may appear, quite intuitively, to be desirable over the pure procedural review model. The desirability lies in the notion that observability of more of the agency's actions while reviewing ought to be beneficial in terms of the court's ability to more effectively monitor the agency. However, the court's observation of the agency's policy choice in addition to the agency's effort choice produces perverse incentives for the agency to obfuscate with its policy choices. If the agency is averse to being overturned by the court then there is no fully sincere equilibrium in which the agency chooses policy at its ideal point, as is the case in the pure procedural review model. Instead the agency is incentivized to exaggerate how extreme the true state is to 'raise the stakes' of overturning for the court. This exaggeration makes it appear as if agency-made policy is more important than it would be if policy were set sincerely. This incentive is predicated on the agency's desire to avoid judicial reversal and the court's inability to credibly commit to upholding even a fully faithful agency when the true state is realized sufficiently closed to its ideal point.

Therein lies the fundamental trade-off between reviewing procedure and judging substance: on the one hand the court does not observe the agency's policy choice directly and thereby loses on substance proportional to the agency's bias but may induce desirable effort incentive effects through its ignorance of the policy choice. On the other hand, when the court is able to observe both the agency's policy choice and effort choice oversight provides incentives for the agency, at times, to choose policy insincerely, thereby obfuscating with respect to how extreme agency-free outcomes (i.e., outcomes if the court overturns) really are.

Related Literature. This paper speaks to several literatures. First, the impact of moving from procedural to substantive review on agency policymaking is related to studies of government transparency and career concerns. Existing models have studied how transparency affects political policymaking incentives (Prat, 2005; Fox, 2007; Fox and Van Weelden, 2012). These models suggest that, at times, increasing transparency of agency actions can lead to negative consequences.³⁰ For instance, Prat (2005), shows that when the principal observes an agent's actions directly the agent has an incentive to disregard useful private information and instead take actions that the principal *ex ante* expects the agent to take.³¹ This distortion in incentives is based on career concerns: the agent has strong incentives to 'act as expected' to avoid being fired when her actions are observed. This is also related to studies uncovering the impact of career concerns on politicians' incentives to pander to constituents (Canes-Wrone, Herron and Shotts, 2001). The desire to remain in office can overpower other considerations, which leads politicians to disregard private information and enact ill-advised policies that conform to voter preferences in order to secure reelection.

³⁰See also Holmström (1999) for an argument showing that a principal's possession of more precise information regarding agent type can reduce effort incentives and Dewatripont, Jewitt and Tirole (1999) for examples showing that agents may work harder if the principal receives a noisy signal of agent performance rather than directly observing it.

³¹See Prendergast (1993) for a paper focused on similar issues, but in a model without career concerns.

In contrast to these studies this paper does not analyze a model of career concerns in the classic sense. The agency cannot be ‘fired.’ However, the agency’s desire to avoid reversal does have analogous effects on its policymaking incentives. This paper highlights how increasing the transparency of the agency’s actions precludes any possibility of fully sincere substantive policy choices. Under procedural review the agency always sets policy sincerely, whereas allowing the court to judge the substance of the agency’s policy choice provides overpowered incentives to exaggerate the utility of agency policymaking. This is not pandering in the sense that the agency chooses bad policies to appease the court. Rather it is straightforward obfuscation in which the agency sets policy more extreme than it would absent transparency of this choice to signal to the court that agency policymaking is necessary. This result complements existing work by highlighting another perverse consequence of increased transparency predicated on an agency’s aversion to judicial reversal: the strong incentive for agencies to exaggerate policy choices to ‘prove their worth.’³²

Closely related to this paper are studies of how judicial review affects policymaking incentives. Fox and Stephenson (2011), for instance, study a model in which judicial review can either decrease or exacerbate posturing. At times, judicial review deters politicians from taking bold, but ill-advised, actions to signal competence. At other times the court provides a “bail-out effect” in which the politician does engage in posturing precisely because she knows that the court will reverse that course of action and therefore neither the politician nor the public will have to suffer the negative consequences of the action. The politician can enjoy the electoral benefits associated with posturing without worrying about enduring the negative consequences. The results in the procedural review model are qualitatively similar with respect to how judicial review structures agency effort incentives. At times,

³²This is also similar but distinct from results in which an agent chooses policy to signal competence. In this model the agency is perfectly competent but may not be seen as useful in terms of producing outcomes. This is conditioned by where, spatially, the true state is realized.

the presence of judicial review induces the agency to invest in high effort when it would not have done so absent judicial oversight. However, at other times the presence of a reviewing court provides incentives for the agency to shirk by choosing low effort when it would have invested in high effort absent judicial review. Rather than enjoying electoral benefits while avoiding adverse policy consequences, in this paper the agency avoids paying the cost of high effort investments while accepting the adverse consequence of being overturned. This paper extends a similar bail-out effect, that follows from a different process, to a different institutional environment.

Finally, taken together, the results in this paper generate implications for literature focused on the strategic use of administrative procedures for political control of bureaucracy. As mentioned above, Congress can craft judicial review provisions while developing legislation that directs agency policymaking. In the case of procedural review, Congress may want to limit which agencies are subject to judicial review to attempt to limit the prevalence of the possible bail-out effects it may have on agency actions. They could do this by restricting citizen suits, for example (Smith, 2006). Existing work has also shown that there is a great deal of political wrangling over procedural rules like scope of review (Huber and Shipan, 2002; Shipan, 1997). The analysis here provides one reason why: the shift from procedural to substantive judicial review has a profound effect on the incentives that judicial oversight provides for different dimensions of agency policymaking. This paper provides a first step in understanding the potential consequences of two particular possible choices with respect to what courts are directed to review.

The remainder of the paper is organized as follows. The next section presents the general framework, the variants of which will be analyzed in the Analysis section. First, the procedural review model is analyzed with a focus on judicial review's effect on agency effort

incentives. Following this, the substantive review model is analyzed with an eye toward incentives for sincere agency policymaking. The final section concludes. Proof of all formal results are in the appendix.

3.2 The Model

I analyze two variants of a model of policymaking between an administrative agency, A , and a reviewing court, C . In the *procedural review model* the court only observes the agency's effort investment. This information structure isolates the role that pure procedural review plays in the interaction between an agency both choosing and implementing policy and a court empowered to review and invalidate agency actions. The court does not review the policy choices of the agency but focuses its review on the process or procedures that will affect the precision of policy outcomes.

In the *substantive review model* the court observes both the policy choice of the agency as well as the effort investment.³³ This allows the court to review every action taken by the agency in the game. Therefore, the court can condition its review decisions based on both the actual substantive policy choice of the agency as well as the procedural administration of that policy as affected by the agency's effort choice. I first characterize the underlying model for both variants and then turn to the analysis of each model.

Consider a situation in which a bureaucratic agency is empowered to regulate social or economic activity in a given policy area. The agency must both choose and implement policy. The latter is affected by an ex ante effort investment, denoted by $e \in \{0, 1\}$ where

³³This review process is essentially *holistic review* in the sense that the court observes both substantive policy choice and the procedural path to implementation. I choose to label this model *substantive review* to help highlight the difference between procedural and substantive review strategies.

$e = 0$ means the agency has invested low effort and $e = 1$ means that the agency has invested high effort. Following this choice the agency observes $\omega \in \mathbb{R}$, which represents the true state of the world, and chooses $x \in \mathbb{R}$, which represents the agency's substantive policy choice. Policy, then, is generated according to the following equation,

$$y = x - \omega + \varepsilon, \tag{3.1}$$

where ε is an implementation shock that captures the errors in the actual enforcement or administration of policy. The likelihood of these implementation errors is minimized when the agency invests high effort ($e = 1$).

The court then reviews the agency's policy actions and chooses to uphold or reverse the agency. This judicial review decision is denoted by $r \in \{0, 1\}$ where $r = 0$ if the court upholds and $r = 1$ if the court reverses. In the first variant of the model the court only observes the agency's choice of effort, high ($e = 1$) or low ($e = 0$), before making its decision to grant the agency deference. This implies a standard of review in which the court is simply concerned with the procedures or process through which the agency reached the action that the court is reviewing. The substantive choice of policy is not reviewed in this case. In the *substantive review model* the court observes, in addition to effort choice, the agency's substantive policy choice, x . Following these choices — agency effort and policy choices, and court review choice — the game ends.

Payoffs. The agency and the court's payoffs are defined as follows:

$$\begin{aligned} u_A(e, y, r) &= -\beta(y - t_A)^2 - \kappa e - \pi r, \\ u_C(e, y, r) &= -y^2. \end{aligned}$$

The parameters of the problem denoted by $\beta > 0$, $\kappa > 0$, $\pi > 0$, and $t_A \in \mathbb{R}$ are taken to be exogenous and common knowledge to all players at the beginning of the game. The court is simply concerned with policy outcomes being as close to zero as possible, *i.e.*, the court's ideal point is normalized to zero relative to the agency. Ideally the court prefers the agency to set policy exactly equal to the state of the world, ω , and invest high effort to limit the likelihood of errors in implementation.

The agency may be biased relative to the court. The level of this bias is denoted by t_A . The higher $|t_A|$, the more biased the agency is with regard to substantive policy choices relative to the court. The agency's utility also depends on the intensity of the agency's policy motivations, captured by β . Notice that β not only weights the policy component of the agency's utility relative to other components, but it also separates how intensely the agency internalizes policy losses relative to the court. The agency also pays cost κ for high effort investments and is more or less averse to being reversed by the court, captured by π . If the court upholds ($r = 0$) then the agency avoids paying the reversal cost π whereas if the court reverses ($r = 1$) the agency must bear this cost.

Finally, notice the commonalities between the two players' preferences. While the agency and the court may diverge — conditional on the value of t_A — with respect to where substantive policy should be set relative to ω , both players prefer more precise outcomes to less precise outcomes. Thus, both the agency and the court, *ceteris paribus*, prefer lower errors in the actual implementation of policy (*i.e.*, smaller realizations of ε), and, therefore, high effort policy administration is preferable for both players. However, the agency is the only player that internalizes the costs of effort required to lower the likelihood of errors in implementation (κ) so the players will often diverge in their perceptions of when high effort is beneficial.

Information and Policymaking. Both players are confronted with the uncertainties of policymaking. Specifically, the true state of the world, ω , is drawn exogenously at the beginning of the game according to cumulative distribution function F_ω , which has mean 0 and strictly positive, finite variance V_F . The realization of ω is only revealed to the agency. Following the agency's choices, the implementation shock ε is realized according to a probability distribution characterized by cumulative distribution function $G_\varepsilon(e)$ with mean 0 and strictly positive, finite variance $V_\varepsilon(e)$.³⁴ $G_\varepsilon(e)$ is a function of agency effort such that if the agency invests high effort then the variance is strictly less than a low effort investment: $V_\varepsilon(1) < V_\varepsilon(0)$. Following this realization, the court chooses to either uphold $r = 0$ or reverse the agency $r = 1$. The information available to the court when making this decision differs depending on the variant of the model. In the *procedural review model* the court only observes the agency's effort choice e , while in the *substantive review model* the court observes the agency's substantive policy choice x in addition to e . If the court upholds then final policy is y generated according to equation 3.1 and if the court reverses then final policy is $y = -\omega$. This proxies the fact that if the agency is reversed then outcomes are realized based on the actions of private individuals or firms absent agency intervention. At this point the game ends, the final policy outcome is set, and payoffs are realized.

Strategies and Equilibrium Concept. I utilize perfect Bayesian equilibrium (PBE) as my equilibrium concept. A strategy for the agency consists of a probability of choosing $e = 1$, denoted by s_A^e , and a mapping from \mathbb{R} into a probability distribution over possible policy choices, $x \in \mathbb{R}$. This probability distribution is conditional on any realization of ω and is denoted by s_A^x . In the *procedural review model* the court's review strategy is a

³⁴Assuming that the mean of $G_\varepsilon(e)$ is 0 is without loss of generality as this simply ensures that any errors in administering policy are centered around the agency's substantive policy choice x , and $G_\varepsilon(e)$ is common knowledge and the agency can set any policy at no cost.

mapping from the set of agency effort levels and potential policy outcomes into a probability of reversal, is denoted by $s_C(e)$, and holds for any agency effort level $e \in \{0, 1\}$ and potential policy outcome $y \in \mathbb{R}$. In the *substantive review model* the court's strategy is a mapping from the set of agency effort levels *and* agency policy choices $x \in \mathbb{R}$ into a probability of reversal, which is denoted by $s_C(e, x)$ and holds for any set of agency effort level and policy choice. The court's beliefs about ω and ε are represented by a probability distribution over \mathbb{R}^2 characterized by cumulative distribution function μ_C . A PBE is a profile of strategies and beliefs $\rho = (s_A^e, s_A^x, s_C, \mu_C)$ such that both players are maximizing their expected payoff and, when applicable, beliefs are consistent with Bayes's rule.³⁵

3.3 Procedural Review

In the *procedural review model* the court observes only the effort investment of the agency, e . I proceed by working backward, first considering the equilibrium judicial review strategy of the court. I then analyze the optimal policy and effort choices of the agency, respectively.

Equilibrium Judicial Review. The court faces the decision of whether to uphold or reverse policy generated by the agency's choices. Recall that the court does not observe y or x in this variant of the model. Thus, in equilibrium, the court employs an optimal review strategy conditional on its beliefs about the agency's policy choice and the relative uncertainty associated with upholding policy by either a high- or low-effort agency and reversing policy. If the court reverses the agency then the final policy outcome is $-\omega$. Thus, the court's subjective expected payoff when it reverses the agency, conditional on its beliefs,

³⁵Given the model set-up these beliefs will always be pinned down by Bayes's rule.

is given by,³⁶

$$U_C(r = 1; \rho_{-C}) = -V_F.$$

The court can expect to receive payoffs equal to the variance of F_ω .

Alternatively, the court can uphold the agency. If the court upholds the agency then its subjective expected payoff is given by,

$$\begin{aligned} U_C(r = 0; \rho_{-C}) &= -V_\varepsilon(e) - \mathbb{E}_{\mu_C}[x - \omega]^2 - V_{\mu_C}[x - \omega], \\ &= -V_\varepsilon(e) - \mathbb{E}_{\mu_C}[x - \omega]^2 - V_{s_A^x}[x - \omega]. \end{aligned}$$

In this case the court internalizes the policy losses from the divergence between the agency's policy choice x and the state of the world ω , the variance of this policy choice (which, given correct beliefs about s_A^{x*} reduces to 0), and the uncertainty associated with the realization of the implementation shock ε given the agency's choice of effort e .

The court will uphold the agency only if $U_C(r = 0; \rho_{-C}) \geq U_C(r = 1; \rho_{-C})$. Moreover, the next section verifies that under procedural review the agency always sets policy at its ideal point: $x^* = \omega + t_A$. Thus, the court's expected payoff for upholding the agency can be simplified such that it satisfies,

$$\begin{aligned} \mathbb{E}_{\mu_C}[x - \omega]^2 &= t_A^2, \\ V_{s_A^x}[x - \omega] &= 0. \end{aligned}$$

Since the court upholds the agency if $U_C(r = 0; \rho_{-C}) \geq U_C(r = 1; \rho_{-C})$ and reverses otherwise the court's optimal judicial review strategy is given by the following best response

³⁶Throughout, I employ the notation, U_i , to denote the expected utility of the players ($i \in \{A, C\}$).

function,

$$s_C^*(e) = \begin{cases} \text{uphold } (r = 0) & \text{if } V_\varepsilon(e) + t_A^2 \leq V_F, \\ \text{reverse } (r = 1) & \text{otherwise.} \end{cases} \quad (3.2)$$

Similar to a standard of judicial review of agency actions suggested in extant literature (Stephenson and Vermeule, 2009), the court's equilibrium review strategy illustrates the court's desire to ensure that the agency is implementing policy as effectively as possible. The court upholds the agency's decision if the expected quality of regulated outcomes, $V_\varepsilon(e)$, given the agency's effort choice e and the policy losses generated by the distance between the agency's biased policy choice relative to ω are better than the imprecision of unregulated outcomes, V_F , which obtain if the court chooses to reverse. The court is essentially employing a cut-off rule common to models of agent retention (*e.g.*, Banks and Sundaram, 1998; Van Weelden, 2013). Notice that the bias of the agency relative to the court, t_A , increases the stringency of the court's review standard, *i.e.*, decreasing $V_\varepsilon(e)$ becomes more necessary to be upheld, *ceteris paribus*, as t_A increases. Substantively, when the court only reviews the procedures through which the agency generated regulated outcomes the court is forced to trade off relatively biased substantive policy choices for increased precision in the administration of policy.

Notice, however, that if the agency is too biased then it will never be upheld. Specifically, if the agency's bias is larger than the increase in policy precision even when the agency invests high effort, *i.e.*, $|t_A| > \sqrt{V_F - V_\varepsilon(1)}$, then the agency will be reversed regardless of its effort investment. Similarly, if the imprecision of regulated agency-made policy is higher than that of unregulated agency-free policy even when the agency is unbiased and has invested high effort, *i.e.*, $V_\varepsilon(1) > V_F$, then the court will always reverse the agency. When the court always reverses the agency regardless of effort choice I refer to this as

perfectly skeptical review. Conversely, if the agency is not too biased and regulated outcomes are more precise than unregulated, agency-free outcomes even when the agency invests low effort, *i.e.*, $V_\varepsilon(0) + t_A^2 \leq V_F$, then the court will uphold the agency independent of effort choice. When the court always upholds the agency regardless of effort choice I refer to this as *perfectly deferential* review. Finally, if the agency's effort choice is dispositive with respect to judicial deference then the court will uphold the agency if and only if the agency invested high effort, *i.e.*, $V_\varepsilon(1) + t_A^2 \leq V_F < V_\varepsilon(0) + t_A^2$. In this case I refer to the standard of review as *conditional-deference* review.

Equilibrium Agency Policy Choice. As noted in the previous section, the agency always sets policy at its ideal point, $\omega + t_A$,

$$s_A^{x*}(\omega) = \omega + t_A.$$

To verify that this is a best response for the agency note that it wants to minimize the distance between its policy choice x and its ideal point conditional on a realized state of the world ω .³⁷ Further, since the court does not observe x or y directly in the procedural review process the court's review behavior can not be conditioned on x . This fact coupled with $G_\varepsilon(e)$ having expectation zero implies that the agency has a weakly dominant strategy of choosing $x = \omega + t_A$. This policy choice holds regardless of agency effort investment. Simply, because the court can not condition its review decision on the agency's policy choice and the agency's policy and effort choices are separable, the agency is always (weakly) better off setting policy at its ideal point so that it incurs no spatial losses based on its choice of x .

³⁷ e is a sunk cost at this stage of the game.

Equilibrium Agency Effort Choice. This section analyzes the agency's effort choice. While the agency's policy choice x does not depend on its choice of e , the court's review strategy can depend on e . Recall there are three environments in which the agency makes effort decisions: *perfectly skeptical* review, *perfectly deferential* review, and *conditional-deference* review.

First, consider the environment in which the court employs *perfectly skeptical* review. In this case the latent agency-free policy environment is always better than one in which the agency has made policy. The agency will never invest high effort since the court will always overturn. As verification of this point consider the agency's net expected payoff for high effort investment:

$$\Delta U_A(e|r = 1) = -\kappa.$$

Thus, if the agency invests high effort the only payoff the agency can expect is a loss incurred from the cost of that effort. There are no policy gains since the outcome when the court always reverses is the same regardless of effort investment. Therefore, intuitively, the agency never invests high effort when the facing a perfectly skeptical court.

Consider now the environment in which the court is perfectly deferential. In this case any agency-made policy — with either high or low effort — is more effective than the latent agency-free policy environment: $V_\epsilon(1) + t_A^2 < V_\epsilon(0) + t_A^2 < V_F$. The agency's net payoff from choosing to invest high effort rather than low effort when the court will always uphold the agency is given by,

$$\Delta U_A(e|r = 0) = \beta(V_\epsilon(0) - V_\epsilon(1)) - \kappa.$$

This net payoff is positive if and only if the policy improvement realized from high effort investment, scaled by the agency's level of policy motivation, exceeds the cost of high effort,

i.e., $\beta(V_\varepsilon(0) - V_\varepsilon(1)) > \kappa$. Thus, the agency will, at times, invest high effort even when the court will always uphold it. Notice, though, that judicial review plays no role in the incentives for the agency to do so. The agency invests high effort if its policy motivations (β) are sufficiently high and the improvement in policy precision is sufficiently valuable ($V_\varepsilon(0) - V_\varepsilon(1)$ is sufficiently large) relative to the cost of realizing those improvements (κ). This implies that the agency invests high effort only if it is sufficiently implicitly motivated to produce high quality outcomes (Feldman, 1989; Prendergast, 2007).

Now consider the final, and most interesting, policy environment in which agency-made policy is more effective than latent agency-free outcomes if and only if the agency invests high effort: $V_\varepsilon(1) + t_A^2 < V_F < V_\varepsilon(0) + t_A^2$. In this case the agency's effort choice is dispositive with respect to judicial deference and accordingly the court applies *conditional-deference* review. The agency's net expected payoff from high effort investment, relative to low effort, in this environment is given by,

$$\Delta U_A(e) = \beta(V_F - V_\varepsilon(1) + t_A^2) - \kappa + \pi.$$

The agency, when facing a *conditional-deference* court, invests high effort only if the gain in increased policy precision is sufficiently large relative to the latent precision of agency-free outcomes and the agency's policy bias is sufficiently large relative to the marginal cost of effort given avoidance of being reversed by the court. Re-arranging this net expected payoff yields the incentive compatibility constraint that must be satisfied for the agency to invest high effort given conditional-deference review:

$$\beta(V_F - V_\varepsilon(1) + t_A^2) \geq \kappa - \pi. \tag{3.3}$$

Equation 3.3 says that the policy precision improvement from high effort ($V_F - V_\varepsilon(1)$) and the policy rents extracted by the agency (t_A), as weighted by the agency's policy motivations (β), must outweigh the marginal cost of high effort given the agency's aversion to being reversed ($\kappa - \pi$) for it to be an optimal course of action. Notice, in contrast to the perfectly deferential review environment, that the presence of a reviewing court can help to strengthen the incentives for the agency to make high effort investments. Specifically, the larger the value of π relative to κ the lower the threshold for high effort to be incentive compatible for the agency when facing conditional-deference review.

Characterization of agency effort in these three environments completes the description of the equilibrium to the *procedural review model*, which is formalized in the following proposition.

Proposition 3. *When judicial review considers only the agency's effort choices the agency:*

1. *Always sets policy sincerely (at its ideal point): $s_A^{x*}(\omega) = \omega + t_A$,*
2. *never invests high effort when facing a perfectly skeptical court,*
3. *invests high effort only if it would have absent judicial review given its own implicit motivations when facing a perfectly deferential court (i.e., $\beta(V_F - V_\varepsilon(1) + t_A^2) \geq \kappa$), and*
4. *invests high effort if the policy improvements generated from that effort and the policy rents extracted through biasing policy choices exceeds the marginal cost of high effort given the agency's aversion to being reversed when facing a conditional-deference court (i.e., $\beta(V_F - V_\varepsilon(1) + t_A^2) \geq \kappa - \pi$).*

Thus far, I have shown that judicial review *can* impact the agency's effort choice. This is the case when the court employs conditional-deference review. However, procedural review

can have differential effects on agency effort incentives dependent on the underlying policy environment. The next section characterizes these different effects procedural review can have on agency effort incentives.

3.3.1 Procedural Review, Conditional-Deference, and Agency Effort Incentives

In this section I show when procedural judicial review of agency policy actions can induce desirable effort behavior and, conversely, when it deters the agency from investing in high effort. These effects obtain when the agency's effort choice affects the review decision of the court, *i.e.*, when it is a conditional-deference court. Recall that in this environment, $V_\varepsilon(1) + t_A^2 \leq V_F < V_\varepsilon(0) + t_A^2$. Therefore, the court upholds the agency if and only if the agency invests high effort. The previous section showed that the agency's net expected payoff from high effort investment when facing a conditional-deference court is given by:

$$\Delta U_A(e = 1 | \text{procedural review}) = \beta(V_F - V_\varepsilon(1) + t_A^2) - \kappa + \pi.$$

This implies that when there is a court present reviewing the agency the agency will invest high effort if and only if the following inequality is satisfied,

$$\beta(V_F - V_\varepsilon(1) + t_A^2) \geq \kappa - \pi. \tag{3.4}$$

Now consider the agency's expected payoff for high effort investment when there is no review of its actions, which implies that it will never be reversed,

$$U_A(e = 1|r = 0) = -\beta V_\varepsilon(1) - \kappa.$$

Similarly, the agency's expected payoff from low effort investment when there is no court present to review its actions is given by,

$$U_A(e = 0|r = 0) = -\beta V_\varepsilon(0).$$

Combining these expected payoffs yields the agency's net expected payoff for high effort investments when there is no procedural judicial review of its actions, which is given by.

$$\Delta U_A(e = 1|\text{no procedural review}) = -\beta(V_\varepsilon(0) - V_\varepsilon(1)) - \kappa.$$

The agency will invest high effort when there is no court to review its policy actions if and only if,

$$\beta(V_\varepsilon(0) - V_\varepsilon(1)) \geq \kappa. \tag{3.5}$$

Equation 3.5 says that the agency will invest high effort when there is no review if the policy improvements of doing so relative to low effort outcomes outweigh the cost of that effort investment. In contrast to equation 3.4 agency-free outcomes are not possible since the court is not present to reverse agency actions. When there is procedural review of agency actions the agency also must take into account the potential spatial losses it would incur if overturned as well as its aversion to being reversed. Moreover, policy precision improvements in the shadow of review are between high effort policy and the reversion associated with

being reversed. These expected payoffs, conditional on whether there is a court engaged in procedural review of agency policy actions, combine to illustrate when the presence of judicial review provides incentives for high effort investment when the agency would have invested low effort absent judicial oversight and when the presence of procedural review deters the agency from high effort investments even though it would have chosen high effort if left to its own motivations. These possibilities are characterized in the following result.

Proposition 4. *When the court is engaged in procedural review, the agency's effort choices are affected as follows:*

1. *If $\Delta U_A(e = 1|\text{procedural review}) \geq 0$ and $\Delta U_A(e = 1|\text{no procedural review}) < 0$ the presence of procedural judicial review induces the agency to invest high effort when it would have invested low effort absent review, and,*
2. *if $\Delta U_A(e = 1|\text{procedural review}) < 0$ and $\Delta U_A(e = 1|\text{no procedural review}) \geq 0$ the presence of procedural judicial review induces the agency to invest low effort even though it would have invested high effort absent review.*

Proposition 4 characterizes when the presence of procedural judicial review strengthens or weakens agency effort incentives. In the first case the agency would have invested low effort were it not being monitored. This illustrates the desirability of a system of procedural judicial review. Without that review outcomes would be less precise in this instance. The second case, however, shows that procedural judicial review can also introduce perverse effort incentives by deterring the agency from making high effort investments when it would have if it were not being reviewed. In this sense, judicial review can provide a bail-out effect for

the agency (see Bueno de Mesquita and Stephenson, 2007; Turner, 2014*b*, for examples of a similar effect on agency effort incentives).³⁸

This perverse effect obtains because rather than the agency choosing between the policy precision improvement from high and low effort agency-made policy ($V_\varepsilon(0) - V_\varepsilon(1)$) it is concerned with the policy precision improvement between high effort agency-made and agency-free policy ($V_F - V_\varepsilon(1)$) and its bias, t_A . Thus, at times, given $V_\varepsilon(1) + t_A^2 \leq V_F < V_\varepsilon(0) + t_A^2$, the court provides a sort of policy insurance that allows the agency to shirk and choose low effort but still remain better off, due to circumventing effort costs, since unregulated agency-free precision is not too low relative to low effort agency-made policy. Thus, the presence of procedural judicial review can certainly produce desirable agency effort incentives, but it can also create perverse incentives that deter the agency from investing high effort *even when it would have were it not being reviewed*.

3.4 Substantive Review

In this section I analyze the substantive review model. In this case the court makes it review decisions with an additional piece of information revealed to it: the agency's policy choice x . I show that the introduction of this extra piece of information precludes the possibility of a fully sincere (or revealing, in terms of policy choice) equilibrium *even when the agency and the court share the same ideal point*.

³⁸In particular, (Turner, 2014*b*), using the same general framework, shows that judicial review has this impact on agency effort incentives even when the agency is perfectly faithful. See also Fox and Stephenson (2011).

Equilibrium Judicial Review. When the court engages in substantive review it observes both the agency's policy choice and effort investment decision. With this added information the court's review strategy changes slightly. In particular, the agency's policy choice reveals information about ω to the court. This additional information leads to the following subjective expected payoffs for the court conditional on overturning the agency,

$$U_C(r = 1; \rho_{-C}) = - [\mathbb{E}[\omega|x^*]^2 + V_{s_A^x}[\omega|x^*]] ,$$

where x^* is the agency's equilibrium policy choice. The court expects to lose utility based on the expected distance between ω and it's ideal point (0). Similarly, the subjective expected payoff for the court conditional on upholding the agency is given by,

$$U_C(r = 0; \rho_{-C}) = - [\mathbb{E}[x^* - \omega|x^*]^2 + V_{s_A^x}[x^* - \omega|x^*] + V_\varepsilon(e)] .$$

In this case, the court expects to lose utility based on the expected distance between the agency's policy choice and it's ideal point (0) as well as the potential imprecision of policy conditional on agency effort investment. Combining these expected payoffs yields the court's net expected payoff for upholding the agency,

$$\Delta U_C(r = 0; \rho_{-C}) = -\mathbb{E}[x^* - \omega|x^*]^2 - V_{s_A^x}[x^* - \omega|x^*] - V_\varepsilon(e) + \mathbb{E}[\omega|x^*]^2 + V_{s_A^x}[\omega|x^*] .$$

Thus, the court upholds the agency if and only if $\Delta U_C(r = 0; \rho_{-C}) \geq 0$. This leads to the following equilibrium judicial review strategy for the court when engaged in substantive

review,

$$s_C^*(x, e) = \begin{cases} \text{uphold } (r = 0) & \text{if } \mathbb{E}[x^* - \omega|x^*]^2 + V_{s_A^x}[x^* - \omega|x^*] + V_\varepsilon(e) \leq \mathbb{E}[\omega|x^*]^2 + V_{s_A^x}[\omega|x^*], \\ \text{reverse } (r = 1) & \text{otherwise.} \end{cases} \quad (3.6)$$

Intuitively, the court upholds the agency if and only if the court is (weakly) better off relative to what it must accept if it overturns the agency. Compared to the pure procedural review model the court's equilibrium review strategy is qualitatively similar. The main difference between the two information structures is that the court may not be able to believe that the agency has set policy at its ideal point with certainty, as was the case in the procedural review model. That is, if the agency is not setting policy sincerely then the choice of x is informative with respect to ω , but not fully revealing. This raises the question of whether or not a fully sincere equilibrium exists when the court observes both the agency's policy and effort choices.

Definition 1. *An equilibrium to the substantive review model is **fully sincere** if and only if the agency sets policy at its ideal point: $s_A^{x*}(\omega) = \omega + t_A$.*

If the agency sets policy at its ideal point then the court learns the true state with certainty. Suppose that this is the case. Then the court's substantive judicial review strategy satisfies,

$$\mathbb{E}[x^* - \omega|x^*]^2 = t_A^2,$$

$$V_{s_A^x}[x^* - \omega|x^*] = 0,$$

$$\mathbb{E}[\omega|x^*]^2 = \omega^2,$$

$$V_{s_A^x}[\omega|x^*] = 0.$$

Since the agency has chosen policy sincerely and the court observes that choice directly, the court is able to infer ω perfectly. This further reduces the court's equilibrium substantive review strategy under sincere agency policymaking to,

$$s_C^*(x^*, e|x^* \text{ sincere}) = \begin{cases} \text{uphold } (r = 0) & \text{if } t_A^2 + V_\varepsilon(e) \leq \omega^2, \\ \text{reverse } (r = 1) & \text{otherwise.} \end{cases} \quad (3.7)$$

Thus, the court will uphold the agency if and only if the policy losses that would come from the bias of the agency and the imprecision of agency-made policy is (weakly) less than the policy losses from reversing and allowing the true state of the world to obtain unobstructed. With the court's substantive judicial review strategy characterized supposing a fully sincere equilibrium, the next section analyzes whether the agency has incentive to choose policy sincerely.

Agency Policy Choice. As noted in the previous section, in this section I am primarily concerned with whether a fully sincere policymaking equilibrium exists in light of the additional information utilized by the court during judicial review. As such, the natural place to begin the analysis is one in which the agency does set policy sincerely (at its ideal point). The agency's (posited) equilibrium policy choice is then,

$$s_A^x(\omega, \text{sincere}) = x^* = \omega + t_A.$$

Recall that when the agency sets policy sincerely the court will uphold the agency if and only if $t_A^2 + V_\varepsilon(e) \leq \omega^2$. Clearly, there will be realizations of the state of the world that are sufficiently extreme that this inequality will hold in many parameter regions. When ω is realized so that this is true the agency will simply choose policy sincerely and be upheld

by the court. However, suppose ω is reasonably moderate (close to 0). In this case it may be unlikely that the court's incentive compatibility constraint is met. To illustrate this possibility, suppose the agency's ideal point is equal to the court's, $t_A = 0$, so that both the agency and the court desire the same policy outcomes. Then the relevant condition for the court to uphold reduces even further:

$$r = 0 \iff \sqrt{V_\varepsilon(e)} \leq |\omega|. \quad (3.8)$$

In this case — when $t_A = 0$ and policy setting is sincere — the court upholds the agency if and only if the standard deviation of implemented agency-made policy is (weakly) less than the realized true state of the world, ω .³⁹ Again, there will be realizations of ω sufficiently extreme that the agency will still set policy sincerely due to satisfaction of the constraint. However, consider the case in which ω is sufficiently moderate (near 0) such that, given the agency's effort choice, $|\omega| < \sqrt{V_\varepsilon(e)}$. In this case, the agency will be reversed by the court with certainty, *even though the agency shares the court's ideal point and has set policy at that ideal point faithfully*.⁴⁰ Moreover, this possibility *always* exists given that $V_\varepsilon(e) > 0$. That is, there always exists a sufficiently moderate realization of ω that would violate equation 3.8.

Having established that there will always be a region — in fact, $[0, \sqrt{V_\varepsilon(e)})$ — where if ω is realized in that interval then the agency, if setting policy sincerely, will be overturned by

³⁹Note that I will focus on cases in which $\omega \geq 0$ so we need only focus on the non-negative portion of the policy space. This is simply to aid in clearer exposition and has no bearing on the qualitative nature of any results.

⁴⁰To belabor the point a bit further, consider the most desirable context in which the agency has chosen $e = 1$, shares the same ideal point with the court, set policy exactly at their shared ideal point, and ω is still sufficiently low to violate the court's IC for upholding. This possibility *always* exists since $V_\varepsilon(e) > 0, e \in \{0, 1\}$. In this case, even though the agency has done everything it could to satisfy the court — invested high effort and set policy at the court's ideal point — the court still cannot uphold the agency once it has learned ω from the agency's sincere policy choice.

the court with certainty the following question arises.⁴¹ Would an agency in this situation, given the court's posited equilibrium strategy in Equation 3.7, deviate from its sincere policymaking strategy? To provide an answer to this question consider the agency's expected payoff for continuing to set policy sincerely given that it will be overturned by the court (i.e., $\sqrt{V_\varepsilon(e)} > |\omega|$),

$$U_A(\text{sincere} | r = 1) = -\beta\omega^2 - \pi.$$

If the agency sets policy sincerely and the court overturns it then it loses utility equal to the policy losses due to the distance between its ideal point and the true state as well as having to suffer the punishment associated with being reversed (π). Now consider the situation in which the agency deviates from sincerity and obfuscates by choosing policy at the court's indifference point to uphold. Call this point $\underline{x} = \sqrt{V_\varepsilon(e)}$. In this case its expected payoff is given by,

$$U_A(\text{obfuscate} | r = 0) = -\beta((\underline{x} - \omega)^2 + V_\varepsilon(e)).$$

Combining these expected payoffs gives the agency's incentive compatibility constraint to obfuscate (deviate from sincere policy setting),

$$\text{obfuscate} \iff \beta(\underline{x} - \omega)^2 + \beta V_\varepsilon(e) - \beta\omega^2 \leq \pi.$$

Now consider an ω realized at a point less than \underline{x} by $\delta > 0$ so that $\omega = \underline{x} - \delta$. Plugging this expression in for ω yields,

$$\beta(\underline{x} - (\underline{x} - \delta))^2 + \beta V_\varepsilon(e) - \beta(\underline{x} - \delta)^2 \leq \pi.$$

⁴¹Note that I am still treating the agency as having the same ideal point as the court, $t_A = 0$, but the calculations extend straightforwardly to the case of a non-zero t_A .

Rearranging and simplifying by substituting $\sqrt{V_\varepsilon(e)}$ back in for \underline{x} yields,

$$\delta \leq \frac{\pi}{2\beta V_\varepsilon(e)}, \quad (3.9)$$

which, so long as $\pi > 0$ and $\beta > 0$, holds for an open set of sufficiently small values of $\delta > 0$. That is, since the RHS of equation 3.9 is strictly positive a δ always exists such that $\delta \leq \frac{\pi}{2\beta V_\varepsilon(e)}$. Thus, there always exists a realization of $|\omega| < \sqrt{V_\varepsilon(e)}$ such that the agency will deviate from sincere policymaking. This implies a fully sincere equilibrium never exists in the substantive review model if $\pi > 0$, which is formalized in the following result.

Proposition 5. *For any positive level of agency aversion to being overturned by the court, $\pi > 0$, there does not exist a fully sincere equilibrium of the substantive review model.*

Proposition 5 formalizes the fact that when the agency's policy choice is observable during judicial review there cannot be a situation in which the agency is *not* incentivized to obfuscate with its policy choices for some realizations of ω . That is, there will always be a case in which the agency would rather choose policy insincerely to be upheld by the court than choose policy sincerely and be overturned for sure. Intuitively, this is due to the fact that if the true state of the underlying policy environment is relatively close to where the court would like it to be then the possibility of policy implementation errors inherent in agency-made policy precludes the court from being able to credibly commit to upholding the agency. Additionally, note that this dynamic obtains in the substantive review model, and not the procedural review model, precisely because the agency's sincere policy choice eliminates any informational asymmetry that previously existed between the agency and the court, i.e., the court learns ω with certainty. While Proposition 5 shows that there is always an interval such that if ω is realized within it the agency will deviate from the sincere policymaking strategy. However, it does not provide a lower bound on this interval in the sense that there

are cases in which ω is sufficiently moderate and the insincere policy the agency would have to choose to obfuscate, and be upheld, is sufficiently far from the agency's ideal point that the agency would prefer to continue to make policy sincerely *even while it knows that when it does so it will be overturned by the court with certainty*. The next result characterizes when the agency would engage in this type of policymaking behavior.⁴²

Proposition 6. *Suppose $\omega = 0$. Then the agency will choose policy sincerely despite knowing it will be overturned with certainty by the court if and only if the precision of agency-made policy is too low relative to the ratio of its aversion to being overturned and policy motivations:*

$$x = \omega \iff V_\epsilon(e) > \frac{\pi}{2\beta}.$$

Reversing the incentive compatibility constraint for the agency to obfuscate rather than set policy sincerely from above, the agency will continue to set policy sincerely knowing it will be overturned if the following holds:

$$\text{sincerity} \iff \beta(\underline{x} - \omega)^2 + \beta V_\epsilon(e) - \beta\omega^2 > \pi.$$

To ease exposition suppose $\omega = 0$ so that the true state of the world is located exactly at the court and the agency's ideal point. Plugging this into the expression for the agency to set policy sincerely above yields,

$$\beta(\underline{x})^2 + \beta V_\epsilon(e) > \pi.$$

Since $\underline{x} = \sqrt{V_\epsilon(e)}$ this expression simplifies to,

$$V_\epsilon(e) > \frac{\pi}{2\beta}.$$

⁴²I will focus on the case when $\omega = 0$ for ease of exposition though the result would extend naturally to $\omega \neq 0$ cases.

Thus, when $\omega = 0$ the agency will continue to set policy sincerely if and only if the precision of agency-made policy is too low ($V_\varepsilon(e)$ too high) relative the ratio of its aversion to being overturned and twice its policy motivations. The likelihood that this condition is met is decreasing in the agency's aversion to being overturned (π) and increasing in its implicit policy motivations (β). As the punishment for the agency being overturned increases relative to its policy motivations it is more likely to find it profitable to obfuscate with its policy choice rather than continue to set policy sincerely. However, as its policy motivations increase the agency becomes more likely to set policy sincerely even when it knows it will be overturned. This dynamic is driven by the agency's dislike for policy losses. Deviating from sincerity means that the agency has to bear the policy losses equal to the distance between the policy it sets insincerely and its ideal point. So, as the agency cares more about policy relative to the cost of being reversed by the court it is less likely to bear these policy losses to be upheld.

Having shown that there does not exist a fully sincere equilibrium to the substantive review model and that there are instances in which the agency would prefer to set policy sincerely even though it will be overturned by the court with certainty we know that the fully sincere equilibrium breaks down due to an interval. Restricting our attention to the non-negatives, this interval ranges from either 0 or the point at which the agency is no longer willing to bear the policy losses it incurs from setting policy insincerely to be upheld to the upper bound past which ω is extreme enough that the court will always uphold the agency for setting policy sincerely. Figure 3.1 displays this intuition graphically. If ω is realized between the agency's ideal point and the upper bound of the first region the policy losses associated with obfuscation are too great and the agency prefers to choose policy sincerely even though it knows it will be overturned by the court. If ω is realized in the middle, darkly shaded, region the agency is willing to obfuscate with its policy choices to be upheld. This is because

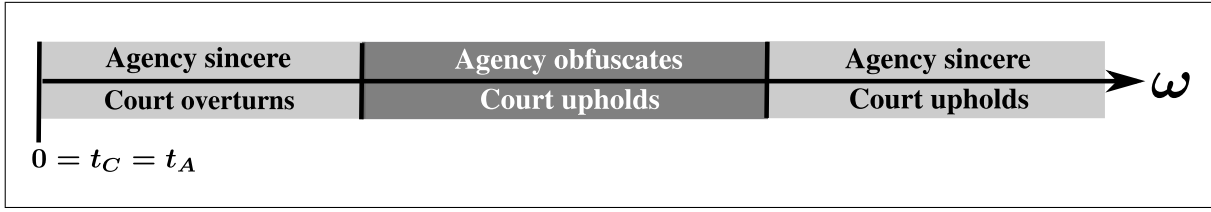


Figure 3.1: An Example of Fully Sincere Equilibrium Unraveling.

the agency's aversion to being overturned is sufficiently high relative the the policy losses it will incur from choosing policy away from ω . The agency, in this case, obfuscates by exaggerating the extremity of ω , which in turn leads the court to uphold. This is because the more extreme is ω , the more important it is from the court's point of view to allow the agency to make policy rather than reverse and have the bear the consequences associated with the reversion. Thus, the agency benefits by obfuscating to exaggerate the necessity of agency-made policy relative to the alternative. Finally, once a realization of ω is sufficiently extreme the agency chooses policy sincerely since the court will uphold the agency given a sincere policy choice.

In this section I showed that there can not exist a fully sincere equilibrium when the court is engaged in substantive review. This is in contrast to the procedural review model in which the agency always sets policy sincerely. This juxtaposition, which occurs simply from the inclusion of an extra piece of information for the court, suggests that observability of agency policy tasks, particularly in a multi-task environment, can have profound consequences for the incentives of policymaking agencies. This has implications for Congressional usage of administrative procedures, discussed briefly in the next section.

3.5 Discussion and Conclusion

In this paper I analyze two models of judicial review of policymaking agency actions. The first is one of pure procedural review in which the court only observes the effort investment made by the agency. This is akin to the court simply making sure that the agency is following the procedures in place it is required to, that it is applying policy equally across those they effect, etc. Under procedural review the court can, at times, induce the agency to make high effort investments when it would have invested low effort absent review. However, at other times, the court induces the agency to invest low effort when it would have made high effort investments absent judicial review through a perverse bail-out effect.

In the second model — the substantive review model — the court observes both the agency's substantive policy choice and effort investment. In this model the incentives for agencies to set policy sincerely are shattered and there can not exist a stable situation in which the agency will always choose policy sincerely. This suggests that the increased observability of agency actions in judicial review can have profound consequences for the way that agencies choose to make policy.

These results, taken together, have implications for Congressional design of judicial review provisions. Dependent on the type of agency to whom the legislature is allocating policymaking authority — in particular, agencies that are either more or less averse to being reversed by courts or agencies that are more or less implicitly policy motivated — the legislature may want to either shield technical or substantive policy choices of the agency from review to provide incentives for the agency to choose policy sincerely. It can do this, for example, by empowering or restricting citizen suit provisions (Smith, 2005, 2006) or otherwise limiting what groups can and cannot challenge what agency actions. But, in this instance it may be

the case that the court will, at times, deter the agency from investing sufficient effort. In response to this possibility, the legislature may choose to subject the substance of agency policy to judicial review to attempt to circumvent the bail-out effect but in so doing must bear the perverse obfuscation effects that are created from doing so by expanding or contracting the scope of review (Shipan, 1997). Defining the scope of review based on what types of agency actions are reviewable, therefore, comes with fundamental trade-offs with respect to agency policymaking incentives.

These trade-offs can have profound implications citizen and/or political principal welfare. While this paper simply sought to analyze what happens when court's are asked to review more in terms of agency policy actions, a thorough welfare analysis of when one system of review dominates the other is necessary. This will require constructing the full mixed-strategy (or semi-separating) equilibrium to the substantive review model that fully characterizes when the agency, and how large the region is in which it does, will be tempted to obfuscate in its policy choices. Following that construction, a more comprehensive analysis of welfare may be possible. Though this paper raises, perhaps more, questions regarding when and how different types of judicial review of agency policy actions are desirable and there is much more work to be done, it is clear from the results presented here that there is indeed a nontrivial difference in the way agency policymaking incentives are structured conditional on whether the court is reviewing procedure or judging substance.

Chapter 4

Political Agency, Oversight, and Bias: The Instrumental Value of Politicized Policymaking

4.1 Introduction

One of the most pervasive tensions in the modern American political system is the reconciliation of effective democratic representation and effective policymaking. One manifestation of this tension concerns the delegation of policymaking authority from popularly elected representatives to unelected bureaucrats. There are those that have argued that delegation is necessary given the complexities of the economic and social environments in which policymaking is required (*e.g.*, Spence and Cross, 2000), and perhaps even democratically desirable (*e.g.*, Meier, 1997; Meier and O'Toole, 2006). Others, however, have argued that delegation is a democratically illegitimate abdication of policymaking authority by Congress (*e.g.*, Lowi, 1979) that threatens to sever the popular control of government action through

the conduit of elected representatives, which is a pillar of democratic theory (*e.g.*, Dahl, 1989; Pettit, 2012; Pitkin, 1967).

The fear of the loss of democratic control of policy implies that agencies pursue policies that run contrary to public wishes as represented through their elected representatives. The most egregious of these ‘political agency problems’ fall into two broad categories: bureaucratic *drift* and *slack*. Bureaucratic drift is a concept meant to capture any bureaucratic behavior characterized by the agency pursuing policies that subvert (Gailmard, 2002), or diverge from, the goals or interests specified by a political principal, *e.g.*, legislative goals set by Congress (Bueno de Mesquita and Stephenson, 2007; Horn and Shepsle, 1989; Shepsle, 1992).⁴³ Bureaucratic slack, on the other hand, refers to the tendency of administrative agencies to implement policy with insufficient levels of effort. This agency cost is common to all types of agencies.

For example, consider a situation in which the EPA is asked to regulate whether, and how much, a mining company can dump fill, debris, or waste in local water sources. Mining companies must have applications cleared by the EPA for a permit to dump. The EPA’s standards for whether to grant or deny the dumping permit represents the agency’s policy choice. How thoroughly the EPA evaluates each individual application for dumping permits represents agency implementation of policy. The policy in place for dumping permitting can be ineffective in several ways. If the substance of the policy is too lax then permits will be granted when they should not and local environments will suffer. If the policy is too stringent then too few permits may be granted and business will suffer. However, imagine that the policy is crafted so that the substantive content of the policy matches the EPA’s

⁴³Examples of different types of what I refer to as drift include agency capture by regulated or interested groups (Niskanen, 1971), selection practices and career concerns of bureaucrats (Heclo, 1988), cognitive and/or institutional biases, or implicit motivations (Gailmard and Patty, 2007; Prendergast, 2007; Seidenfeld, 2002).

goals, perfectly balancing environmental preservation and economic well-being. The policy, even though very effectively crafted on a technical level, may still prove ineffective if the EPA did not invest sufficient effort to develop to capacity to implement effectively. If the EPA were to invest low effort — through insufficient staffing, lack of technical support, etc. — into reviewing permit applications it would be much more prone to erroneously grant permits when they should not have been granted or deny permits when they should have been granted. In both cases the policy is ineffectively implemented due to lack of effort. This environment — along with many others in which agencies grant/deny permits, make licensing decisions, provide disaster relief, housing, and other government aid — illuminates how the overall quality of agency-made policy operates in the model. If the Agency invests insufficient ex ante effort then, regardless of its policy choice, the quality of outcomes suffers through lack of policy precision.

Thus, there is a dual political agency problem present: not only must political principals or institutional designers monitor or provide incentives for congruent policy *choice*, they must simultaneously do so for effective agency *effort* to ensure effective implementation or enforcement. If incongruent agency policy outcomes are a concern for political principals then why do these same principals create and sustain biased agencies? How do these principals, through regulatory oversight, control both drift and slack once authority has been delegated to the bureaucracy? The answers to these questions have implications for the institutional design of administrative agencies, the nature of inter-institutional policymaking, and empirical studies of bureaucratic control.

Through analysis of a game-theoretic model, I develop a theory of American policymaking between a political principal (interpreted as a legislature), a policymaking agency, and a reviewing court. Policy outcomes consist of both a spatial policy choice by the agency, over

which the players may disagree conditional on biases, and an implementation component, which all players value equally and the quality of which is conditional on agency effort investment.⁴⁴ The legislature ‘designs’ the agency to which it allocates policymaking authority by choosing the agency’s bias. Following this choice, the agency chooses how much effort to invest toward implementing policy and where to set policy spatially. The agency’s effort choice directly impacts the quality of policy outcomes. The higher the level of effort invested by the agency toward implementation, the more precise are policy outcomes. As in the EPA example above, agencies do more than choose policy along some substantive or ideological dimension; they must also effectively implement or enforce policy in practice (Carpenter, 2001; Derthick, 1990; Lipsky, 1980).⁴⁵ Finally, a reviewing court, upon observing agency effort, decides to uphold or reverse the agency. Modeling the court as an overseer is in line with one prevalent form of political control: subjection of administrative agencies to review or monitoring by another political entity (*e.g.*, Bueno de Mesquita and Stephenson, 2007; Sunstein, 1984).

In contrast to congressional instruments of control, monitors such as courts “rely on different, and more blunt, instruments of control” (Bueno de Mesquita and Stephenson, 2007). Specifically, courts cannot supplant agency policies, alter agency budgets, or strip agencies of policy authority. They can, however, effectively veto a given agency policy action. The Administrative Procedures Act (APA) directs courts to engage in “hard look” review of

⁴⁴Recent literature analyzing issues of agency capacity (Huber and McCarty, 2004; Ting, 2011) and the development of policy in organizations (Hirsch and Shotts, 2013, 2014, 2015) has recognized this general distinction between policy choice and effort investments that directly impact the quality of policy outcomes.

⁴⁵Carpenter (2001) distinguishes between an agency’s analytic and programmatic capacities. The first refers to the agency’s ability to adequately craft policy while the second refers to its ability to effectively administer policy. Lipsky (1980) is interested in “street-level bureaucracy,” which is how policy is applied on the ground by lower level bureaucrats. Both views are analogous to my treatment of agency policymaking in this paper.

agency policymaking and reverse actions found to be “arbitrary and capricious” (Breyer, 1986; Stephenson, 2006).⁴⁶

Judicial review of agency policy actions can be a powerful tool that, at times, induces agencies to invest higher levels of effort than they would if left to their own motivations (*e.g.*, Turner, 2014*b*). However, the presence of a reviewing court can also dissuade agencies from regulating (Bueno de Mesquita and Stephenson, 2007) or investing sufficient effort in the actual implementation of policy (Turner, 2014*b*). Which one of these effects of review emerges depends on the motivations of the agency itself and the underlying policy environment. Courts cannot credibly commit to *not* intervening when it will deter agencies from working hard because they only have two choices: uphold or reverse. This limitation of judicial review as an instrument of control creates a trade-off for the legislature. When both bureaucratic drift — generated through agency policy biases — and bureaucratic slack — generated by lack of effort investment aimed at quality policy enforcement — are concerns, the legislature must sometimes trade off biased policy outcomes in exchange for increased effort investments.

Related literature. This paper contributes to, and has benefitted from, several existing literatures. First, by incorporating the role that agency-court interactions have on institutional design incentives for a principal, this paper contributes to literature examining judicial review’s impact on policymaking. Scholars have examined the effects of judicial review on the incentive for politicians to pander in electoral settings (Fox and Stephenson, 2011), the incentives to invest costly effort (Bueno de Mesquita and Stephenson, 2007; Stephenson, 2006; Turner, 2014*b*), the relationship between legislatures and courts (Rogers, 2001; Rogers

⁴⁶It should be noted that executive review by the Office of Information and Regulatory Affairs (OIRA) suffers from the same limitations as courts. It cannot supplant agency policy directly, but it can effectively veto proposed rules by agencies.

and Vanberg, 2002; Vanberg, 2001), and information acquisition and more informed policymaking (Dragu and Board, 2013). In addition, extant research has analyzed how different types of judicial review or rulings may impact policymaking (Staton and Vanberg, 2008; Turner, 2014*a*). While this paper shares the goal of further understanding how judicial review impacts policymaking, it complements existing work by investigating how downstream agency-court interactions impact up-stream legislative incentives to design biased administrative agencies.⁴⁷

The particular focus on institutional design also complements literature examining how a principal delegating policymaking authority to an agent would design review of agent decisions. For instance, Bubb and Warren (2014) provide results that suggest a principal will appoint a maximally biased agent to make decisions on its behalf when that agent is subject to review by a more moderately biased actor. They focus most closely on how dividing policy tasks between an agent and reviewer structures both the impact regulatory review has on agent policymaking and the optimal choice of bias for both actors by the principal. In contrast, I focus specifically on how judicial review, which is limited to accepting agency-made policy or not, impacts agency effort incentives and how that, in turn, structures the incentives for the legislature to create a biased agency.⁴⁸

Similarly, Hirsch and Shotts (2014) also focus on how effort and bias interact with respect to the optimal spatial location of reviewer preferences. Specifically, the authors show that when there is a biased agent or “entrepreneur” that can increase the quality of policy through effort investment, the principal benefits from delegating decision-making authority—to accept or reject the entrepreneur’s proposed policy—to an oppositely biased reviewer that counteracts

⁴⁷The way that judicial review, modeled as ex post review of policy with a veto, structures agent incentives is also related to literature examining agent retention (*e.g.*, Banks and Sundaram, 1993, 1998).

⁴⁸Moreover, the results presented in this paper are partially driven by the spatial representation of preferences from which Bubb and Warren (2014) claim to have departed.

the bias of the entrepreneur. While both papers have results that are driven by the bias-effort trade-off faced by the principal, I focus on a different institutional environment. In particular, I focus on how the optimal choice of policymaking agency (their entrepreneur) by a legislature (their principal) is structured by the impact of judicial review (their reviewer) on agency effort incentives.⁴⁹ In this way, the results presented here complement those in Hirsch and Shotts (2014). Overall, the results in this paper contribute to this growing literature by further exploring how subjection of agent decision-making to ex post review may benefit a political principal and structure the incentives for the creation and sustainment of biased agencies in the American policymaking system.⁵⁰

Finally, this paper is closely related to previous studies examining legislative organization (Gilligan and Krehbiel, 1987, 1989; Gailmard and Hammond, 2011). Gilligan and Krehbiel (1987) argue that the floor of a legislature has incentive to choose closed (rather than open) rules, even for extreme committees, to induce committee investment in specialization. By pre-committing through its procedural choice of a closed rule the legislative floor precludes its own ability to supplant committee bills proposed with its own preferred policy. Instead, the floor can only either accept or reject the committee’s proposal. This provides incentives for the committee to invest in expertise that leads the floor to approve its biased policy

⁴⁹Similarly, Dessein (2002) also studies how a principal chooses the ideological location of an institution that reviews agent decision-making to attempt to induce information disclosure. Due to the focus on information acquisition and communication there is no effort dimension, which is of central importance in this paper.

⁵⁰More generally, previous studies have shown that, at times, principals prefer biased agents (see *e.g.*, Bendor and Meirowitz, 2004; Che and Kartik, 2009; Van Weelden, 2013). For example, Bendor and Meirowitz (2004) show that principals may prefer biased agents to faithful agents if biased agents are willing to work harder. In this paper, this dynamic between bias and effort only exists through the intervening effects of judicial review. Similarly, Van Weelden (2013) provides results where voters may elect candidates with divergent policy preferences in exchange for reduced rent-seeking. While focused on different institutional and political environments, the legislature’s creation of a biased agency in this paper is similarly driven by the spatial nature of preferences and the concavity of the principal’s utility function. The results in this paper follow these studies generally by highlighting a fundamental trade-off between bias and quality for political principals.

proposal. The incentive is intensified the more extreme the committee is biased because it lowers the marginal cost of specialization by inducing a higher commitment to having the biased policy stand up to floor approval. That is, the committee is more willing to pay the cost of specialization to see its policy choice realized the more the committee has to lose from having that choice vetoed in favor of the status quo by the floor. This logic is similar to the dynamics explored in this paper.

In particular, the role of the court in the game is similar to operating under a closed rule. The court can only veto the agency's policy choice, it cannot supplant it for its own preferred policy. In contrast to Gilligan and Krehbiel (1987), this paper does not examine whether the principal (the legislature) would prefer to retain some sort of decision-making authority (or vest this authority in the judicial overseer). Rather, I examine how the principal can leverage the preference divergence and the limited ability of the court to supplant agency policy for her own benefit. Specifically, the legislature (or principal) benefits from "closed rule" oversight after delegating policymaking authority to the agency because it induces the agency to invest in costly effort to improve policy implementation. While the dynamics are certainly related — preference divergence in conjunction with veto-oriented oversight providing incentives for costly investments — the strategic environment being analyzed is distinct.

Also closely related is Gailmard and Hammond (2011). In that paper the authors argue that the House of Representatives has incentive to create biased committees to increase their leverage over inter-institutional bargaining with the Senate. Specifically, the more likely it is that the Senate will propose a policy that the two chambers will subsequently bargain over, the stronger the incentive to create a biased committee to serve as a "tougher" veto point that the Senate must take into account. This leads the Senate to, at times, propose more

favorable policies to the House as a whole than it would absent a biased committee. The authors write, “an unrepresentative committee is a veto constraint for the other chamber, and can prevent it from making proposals that the committee’s parent H would rather not face but cannot commit to reject” (p. 541). With full agenda-setting power the House has no incentive to create unrepresentative committees because the role is reduced to that of a policy adviser rather than a bargaining agent.

The logic in this paper as to why the legislature benefits from a biased agency is closely related. The legislature (the House in Gailmard and Hammond’s terms) prefers having a third-party overseer (the court) because it can avoid its own commitment problems and leveraging those of the court. With a biased court overseeing policymaking the legislature creates an oppositely biased agency to take advantage of the court’s own commitment problems. By pitting the two institutions against one another, the legislature is able to extract more effort from the agency with a lower level of bias than if the legislature were the overseer. In this way, a third party is used by the principal in a strategic interaction that leads to a better outcome than could be obtained absent that third party. While the logic is similar, the setting is quite different. There is no expertise or effort considerations in Gailmard and Hammond (2011), while this investment is key to the results in this paper. The focus on incentives is quite similar between the two papers, but they diverge in the institutional settings they seek to analyze.

Overall, the theory provides instrumental reasons for the institutional design of biased agencies. This logic is driven by incentive effects provided by the presence of a reviewing court in the overarching policymaking system. The results show that a political principal, which I interpret as a legislature, can mitigate problems of insufficient effort investments through the creation of a biased policymaking agency by leveraging the effect of ex post judicial review

on incentives for agencies to “work hard” (Turner, 2014*b*). That is, the legislature designing the agency trades off bureaucratic drift to reduce slack. In fact, the analysis suggests that reviewability of agency policy actions only affects agency effort choices if its bias does as well, and vice versa. Without the systemic institutional feature of judicial review the legislature cannot affect agency effort with its choice of agency bias. However, when judicial review is present in the policymaking system the legislature can induce higher quality implementation by creating a biased agency.

The remainder of the paper is organized as follows. Section 4.2 presents a model of policymaking between a legislature, an agency, and a court. Section 4.3 analyzes optimal judicial review, optimal agency policy and effort choices, and the optimal level of agency bias. Following the analysis, Section 4.3.4 provides logic for why, in this context, principals generally gain from appointing biased agents. Section 4.4 discusses several empirical implications of the model and, finally, Section 4.5 concludes. All proofs can be found in the appendix.

4.2 The Model

To investigate the implications of regulatory oversight and the optimal level of agency bias from a political principal’s perspective, I analyze a three-player, non-cooperative game between a Legislature that chooses the type of agency authorized to make policy, an Agency charged with both choosing and implementing policy effectively, and a Court empowered to review, and invalidate, the Agency’s policy actions. The game consists of a single period of policymaking in which, first, the Legislature chooses the bias or “type” of Agency, denoted by $t_A \in \mathbb{R}$, to which it will allocate policymaking authority. In the game, once the Legislature designs the Agency it delegates full policymaking authority to the Agency (Aghion and

Tirole, 1997). The Legislature simply wants policy outcomes to be realized as effectively as possible relative to an underlying true state of the world, denoted by $\omega \in \mathbb{R}$ that is drawn according to a cumulative distribution function, F_ω with mean 0 and strictly positive, finite variance V_F . How close policy outcomes are to ω depends on Agency effort investment and setting policy spatially and whether the Court chooses to uphold or reverse the Agency.

The Agency's effort choice, denoted $e \in [0, 1]$, directly affects the quality of policy through its effect on the precision with which outcomes approximate the Agency's spatial policy choice. The more effort an agency invests toward improving enforcement capacity, the less likely it is that errors will be introduced during policy administration. Specifically, one component of agency-made policy is an implementation shock, $\varepsilon \in \mathbb{R}$, that reflects the difficulties of administering policy even when the substantive content of policy is clearly crafted. This shock is drawn from a cumulative distribution function $G_\varepsilon(e)$ with mean 0 and strictly positive, finite variance $V_\varepsilon(e)$, which is further conditional on Agency effort.⁵¹ I assume that the variance of ε conditional on Agency effort is strictly decreasing, $V'_\varepsilon(e) < 0$, and convex, $V''_\varepsilon(e) > 0$ and $V'''_\varepsilon(e) \geq 0$. This ensures that $V_\varepsilon(e) < V_\varepsilon(e')$ if and only if $e > e'$. Put simply, the more effort the Agency invests toward implementing policy effectively, the more precise policy becomes. This operationalizes how thoroughly the EPA can evaluate permit applications from the example in the introduction. Following the Agency's effort investment, it observes ω perfectly and chooses where to set policy spatially. This policy choice is given by $x \in \mathbb{R}$. The choice of x by the Agency denotes the substantive policy choice and can be understood as a "policy target" in the sense that final policy outcomes are further conditional on the true underlying state, ω , and the effort investment, e , of the Agency. In the EPA permitting example this represents the substantive content of policy

⁵¹The mean of $G_\varepsilon(e)$ is 0 to capture the idea that any error in implementation of policy distorts outcomes away from the Agency's policy choice, x .

that dictates the standards against which permit applications are judged. The overall quality of agency-made policy is contingent on both Agency choices.

After the Legislature has chosen the type of Agency, the Agency has made its effort investment and set policy, the Court observes Agency effort, e , and can choose to either uphold or reverse. This choice is denoted by $r \in \{0, 1\}$, where $r = 0$ denotes the Court's choice to uphold and $r = 1$ denotes a choice to reverse the Agency. The Court is also biased relative to the Legislature. The Court's ideal point, or bias, is denoted by $t_C \in \mathbb{R}$. This ideal point is fixed exogenously to focus on the legislative choice of agency bias directly. If the Court upholds, then agency-made policy obtains and becomes final policy. If the Court reverses, then the final policy outcome is simply $-\omega$. In this case, the Agency has no impact on policy and the underlying state obtains unchanged. This reversion outcome can most naturally be understood as outcomes that are realized through the unregulated actions of private actors given the contingencies of the policy environment.

For instance, perhaps the EPA chooses a policy x that denotes more stringent permitting standards and invests insufficient effort to improve the enforcement of these more stringent standards, which generates erroneous permit denials (or erroneous permit approvals). If the Court reviews and reverses these types of actions then the more stringent permitting standards are thrown out. The Agency also loses any effort it may have invested toward implementing the policy effectively since decisions, erroneous or not, based on that policy are invalidated. In this way, the reversion $-\omega$ represents the errors that will occur under the less stringent status quo permitting standards at a baseline level of Agency effort investments. Put simply, if the Court reverses the Agency then the outcomes that would obtain through the actions of exogenous actors, absent any new Agency intervention, are realized. Final

policy is generated according to the following function,

$$y = \begin{cases} x - \omega + \varepsilon & \text{if } r = 0, \\ -\omega & \text{if } r = 1. \end{cases} \quad (4.1)$$

Following this policymaking process — Nature’s choice of ω , the Legislature’s choice of bias, the Agency’s effort and policy choices, and the Court’s choice to uphold or reverse — the game ends and payoffs are realized.

Payoffs. The payoffs of the Legislature, the Agency, and the Court are given by the following expressions, respectively.

$$\begin{aligned} u_L(e, y, r) &= -y^2, \\ u_A(e, y, r) &= -\beta(y - t_A)^2 - \kappa e - \pi r, \\ u_C(e, y, r) &= -(y - t_C)^2. \end{aligned}$$

It is immediately apparent from the actors’ preferences that the Legislature is simply concerned with policy being set so it matches the true state of the world (*i.e.*, the Legislature’s ideal policy is when $x = \omega$). However, the Agency and the Court have their own ideal policy outcomes in mind. These ideal points, t_A and t_C respectively, represent Agency and Court types. Each institution can diverge in their preferences over ideal policy outcomes given ω . Thus, the Agency and the Court would both like policy to be set (and realized) as close to their respective ideal points as possible. Recall, however, that in contrast to the Court, whose ideal point is treated as exogenous, the Agency’s ideal point, t_A , is chosen by the Legislature and is therefore endogenous to the game. In all of the analysis that follows, I assume

that $t_C < 0$ so that the Court is to the left of the Legislature ideologically. The Agency's payoffs are further conditional on the relative strength of its policy motivations, $\beta > 0$, effort costs, $\kappa > 0$, and its aversion to being reversed by the Court, $\pi > 0$. The policy intensity parameter β measures how heavily the Agency weights policy relative to both the other components of its utility and the policy motivations of the Legislature and Court. Highly technical or complex policy areas can be thought of as generating higher effort costs relative to policy areas that involve less onerous activities. The Agency's aversion to being reversed by the Court captures how heavily the reviewability of Agency actions affect payoffs. An Agency with a higher level of aversion to being overturned suffers a harsher punishment for this reprimand of its actions. Aside from t_A , which is determined endogenously, the other parameters — β , κ , π , and t_C — are exogenous and common knowledge.

Information and policymaking. The players are forced to confront the uncertainty inherent in policymaking. This uncertainty is captured in the distributions of ω and ε . Recall that ω is distributed according to F_ω with mean 0 and variance V_F . The Legislature must choose the type of Agency it will empower to make policy (*i.e.*, the Legislature chooses the level of Agency bias relative to its own policy preferences). The Legislature makes this decision based on knowledge of F_ω and $G_\varepsilon(e)$ as well as knowledge of the Agency's payoff structure. Thus, the Legislature chooses bias based on beliefs over ω , ε , and the Agency's policy choice and effort strategies given the incentives produced by the presence of the reviewing Court.

The Agency observes the realization of ω following its effort investment e . After x is chosen by the Agency, ε is realized according to $G_\varepsilon(e)$. All the players — the Legislature, the Agency, and the Court — know that the higher the Agency's effort, the lower $V_\varepsilon(e)$ becomes, and,

therefore, the higher the precision of final agency-made policy. So, the Agency, after choosing e , observes ω , chooses x , ε is realized, and then the Court must decide whether to uphold or reverse the Agency. This reversal decision is made by the Court based on beliefs over the Agency's policy choice strategy and the level of variance associated with upholding or reversing the Agency's actions, which is further conditional on the Agency's choice of e . Moreover, the Agency's policy bias relative to the Court is common knowledge. Thus, the Court does know the choice of e and the level of preference divergence relative to the Agency, but does not know ω or ε .⁵² The Court does know F_ω and $G_\varepsilon(e)$ and, thus, also knows V_F and $V_\varepsilon(e)$.

Strategies and equilibrium concept. I utilize perfect Bayesian equilibrium (PBE) in weakly undominated strategies. The Legislature's strategy consists of a choice over the type of Agency, in terms of policy bias, it empowers to choose and implement policy. Denote this strategy by s_L . The Legislature also has beliefs over ω and ε , which are represented by μ_L , a cumulative distribution function that represents a probability distribution over ω and ε . The Agency's strategy consists of an effort investment choice denoted by s_A^e , and a policy mapping conditional on the realization of ω denoted by $s_A^x(\omega)$. The Agency also has beliefs over ε denoted by μ_A . The Court's review strategy consists of a mapping from the set of Agency effort levels and the potential policy outcomes into a probability of reversing the Agency. Denote this strategy by $s_C(e)$ that holds for any Agency effort level $e \in [0, 1]$ and potential policy outcome $y \in \mathbb{R}$. The Court, like the Legislature, also has beliefs over ω and ε characterized in the same manner as the Legislature's beliefs, which are denoted by μ_C . A PBE is a complete profile of strategies and beliefs $\rho = (s_L, \mu_L, s_A^e, s_A^x, \mu_A, s_C, \mu_C)$ such that

⁵²The Court also does not observe x or y .

all players are maximizing their expected payoffs given other players' strategies and, when applicable, beliefs are consistent with Bayes's rule.⁵³

4.3 Analysis

I proceed by working backward and characterizing the Court's optimal judicial review strategy first. Following this, I move to equilibrium policy and effort choices by the Agency. Finally, I characterize the Legislature's optimal choice of agency bias in light of the effect of judicial review on agency behavior.

4.3.1 Equilibrium Judicial Review

The Court will uphold Agency policy actions if the expected payoff from doing so outweighs the expected payoff of reversing the Agency and allowing unregulated outcomes (*i.e.*, $y = -\omega$) to obtain. Recall that the Court only directly observes the Agency's effort investment, e . If the Court reverses the Agency then it receives the following expected payoff,

$$U_C(\text{reverse: } r = 1; \rho_{-C}) = -t_C^2 - V_F.$$

In the case of reversal, the Court expects to lose utility equal to the (squared) distance from its ideal point to the expected true state (*i.e.*, $\mathbb{E}[\omega - t_C]^2 = t_C^2$) and the variance of F_ω , V_F . Alternatively, the *Court* could opt to uphold the *Agency*. This decision yields the following

⁵³Given the set-up these beliefs will always be pinned down by Bayes's rule.

subjective expected payoff for upholding the Agency,

$$U_C(\text{uphold: } r = 0; \rho_{-C}) = -V_\varepsilon(e) - \mathbb{E}_{\mu_C}[x - \omega - t_C]^2 - V_{s_A^x}[x - \omega - t_C].$$

Put simply, the Court can expect to incur losses equal to the variance of implementation conditional on effort level e ($V_\varepsilon(e)$) and the distance between agency-made policy, the true underlying state, and its own bias. The next section verifies that the Agency always sets policy sincerely (*i.e.*, at its own ideal point) so that $x^* = \omega + t_A$. Thus, the Court's beliefs are straightforward and satisfy,

$$\begin{aligned}\mathbb{E}_{\mu_C}[x - \omega - t_C]^2 &= (t_A - t_C)^2, \text{ and} \\ V_{s_A^x}[x - \omega - t_C] &= 0.\end{aligned}$$

The Court upholds the Agency if and only if $U_C(\text{uphold: } r = 0; \rho_{-C}) \geq U_C(\text{reverse: } r = 1; \rho_{-C})$. Simplifying and rearranging the expressions above we obtain the following incentive compatibility condition for the Court to uphold the Agency,

$$\underbrace{V_F - V_\varepsilon(e)}_{\text{Increased policy precision}} \geq \underbrace{(t_A - t_C)^2 - t_C^2}_{\text{Net policy loss}}. \quad (4.2)$$

The components of the Court's incentive compatibility condition to uphold in Equation 4.2 illustrate how increased precision in policy outcomes relate to spatial policy losses with respect to the Court's decision-making. If the increase in precision of outcomes outweighs the net spatial policy losses created by an Agency setting policy with bias t_A then the Court upholds agency-made policy. This incentive compatibility condition yields the first result of the paper.

Lemma 3. *The Court upholds the Agency's policy actions if and only if the increase in policy precision given the Agency's effort investment outweighs the net policy loss from upholding an Agency with bias t_A (i.e., $r = 0 \iff V_F - V_\varepsilon(e) \geq (t_A - t_C)^2 - t_C^2$).*

The increase in policy precision on the LHS of Equation 4.2 is dictated by the effort investment of the Agency. This implies that the Court, conditional on Agency bias (t_A) and the volatility of the unregulated policy environment (V_F), essentially employs an effort threshold when reviewing agency policy actions. Define this effort threshold as the minimum acceptable level of Agency effort investment, given bias t_A , such that the Court will still uphold agency-made policy, which is denoted by $\underline{e}_C(t_A) \equiv e$ such that $V_F - V_\varepsilon(e) = (t_A - t_C)^2 - t_C^2$. Utilizing this effort threshold yields the following best response function for the Court,

$$s_C^*(e) = \begin{cases} \text{uphold: } r = 0 & \text{if } e \geq \underline{e}_C(t_A), \\ \text{reverse: } r = 1 & \text{if } e < \underline{e}_C(t_A), \end{cases} \quad (4.3)$$

where e is the Agency's effort investment and $\underline{e}_C(t_A)$ is the Court's threshold defined above. Straightforward inspection of the Court's threshold shows that the stringency of judicial review is increasing in the bias of the Agency: $\underline{e}_C(t_A)$ is increasing in t_A . All else equal, the more biased an Agency is, the harder it will have to work to be upheld by the Court.

It is not always the case that Agency effort choices affect the Court's review decisions. Define $\bar{b}_C(V_F, t_C) \equiv t_A$ such that $V_F - V_\varepsilon(1) = (t_A - t_C)^2 - t_C^2$ as the maximal level of Agency bias possible in which the Court will still uphold (given maximal effort investment). If the Agency is biased past this point the Court will never uphold regardless of effort. That is, any Agency biased past this point cannot work hard enough to offset the spatial policy losses incurred by the Court when it upholds. This could be the case because the Agency is too biased relative

to the Court, $(t_A - t_C)^2$, or the policy environment is characterized by very low variability relative to agency-made policy, $V_F \rightarrow 0$ (or, obviously, some combination of these). In this case we can think of the Court as *perfectly skeptical* in the sense that the Court always reverses the Agency independent of effort investment.

Conversely, let $\underline{b}_C(t_A) \equiv t_A$ such that $V_F - V_\varepsilon(0) = (t_A - t_C)^2 - t_C^2$ be the maximal level of Agency bias in which the Court will uphold the Agency even with zero effort investment. In this case, the Agency is sufficiently moderate relative to the Court, or variability of the underlying environment is sufficiently high (or both), that the Court will always uphold the Agency independent of effort. That is, even if the Agency does not work to improve implementation at all, the Court cannot credibly commit to overturning given incentive compatibility. We can term a Court in this situation to be *perfectly deferential*. In the cases of both perfectly skeptical and perfectly deferential courts, the outcome of judicial review is invariant with respect to Agency effort choices: the Court either always reverses or always upholds the Agency and cannot credibly do otherwise.

To complete the analysis of equilibrium judicial review, simply note that there are a range of possible Agency biases that fall between these bias thresholds (*i.e.*, $t_A \in (\underline{b}_C(t_A), \bar{b}_C(V_F, t_C))$). In these cases, judicial review is responsive to Agency effort investments. The Agency's bias is such that some effort investment greater than zero and below the maximum level of effort is acceptable for the Court to uphold, but other levels of effort below that threshold ($\underline{e}_C(t_A)$) are unacceptable and the Court will reverse. In this case we can consider the Court to be employing a *conditional-deference* standard of review. The Court is willing to uphold the Agency if it invests high enough effort (and in contrast to an agency more biased than $\bar{b}_C(V_F, t_C)$ the Agency can), but if it does not then the Court will reverse (in contrast to

the case of an Agency that is biased below $\underline{b}_C(t_A)$). The next section details how an Agency making these effort choices best responds to the Court's judicial review strategy.

4.3.2 Agency Decision-making

In this section I analyze the decision-making of the Agency. Working backward, the analysis begins with the optimal choice of policy. Following this, the analysis turns to the optimal effort choice conditional on the Court's equilibrium judicial review strategy.

Equilibrium Agency Policy Choice

As noted in the previous section, in equilibrium the Agency always sets policy at its ideal point, t_A . The Agency seeks to minimize the distance between its policy choice, x , and its ideal policy outcome, t_A , relative to a realized state of the world, ω .⁵⁴ Consider the (pure) strategy in which the Agency sets policy x exactly at its ideal point, $\omega + t_A$,

$$s_A^{x*}(\omega) = \omega + t_A.$$

To verify that this is a best response by the Agency, note that the Court does not observe either x or y directly. Thus, the Court's review behavior can not be conditioned on x , even indirectly. Accordingly, given the normalization that $G_\varepsilon(e)$ has expectation zero, the Agency has a weakly dominant strategy of choosing $x = \omega + t_A$, regardless of its effort investment, $e \in [0, 1]$. Put another way, since the Court cannot condition its deference choice on the

⁵⁴Note that, at this point in the game, e is a sunk cost.

Agency's policy choice and the Agency's policy and effort choices are separable, the Agency is always (weakly) better off choosing policy such that it incurs zero policy loss in equilibrium.

Equilibrium Agency Effort

There are three cases to analyze with respect to Agency effort investments: when the Agency (1) faces a perfectly skeptical Court; (2) faces a perfectly deferential Court; and (3) faces a conditional-deference Court. In cases (1) and (2) Agency effort does not affect the Court's decision-making so I refer to these as situations in which the Agency is *unconstrained* by judicial review. However, in case (3) the Agency's effort choice does impact the Court's review decision. I refer to this situation as the Agency being *constrained* by judicial review. When the Agency is constrained, its effort choice is dispositive with respect to judicial deference.

Unconstrained Agency Effort. When the Agency is facing a perfectly skeptical Court it will not be upheld regardless of its effort investment. In equilibrium, quite intuitively, the Agency never invests any positive effort when the Court will always reverse. The logic for this is straightforward. Regardless of the effort investment made by the Agency, the Court reverses and the final policy outcome is $y = -\omega$ from Equation 4.1. Since this is the outcome independent of the Agency's effort choice, any positive effort investment leads to a net utility loss equal to effort costs. Therefore, when facing a perfectly skeptical Court the Agency never invests positive effort.

In contrast, when the Agency is facing a perfectly deferential Court it invests effort based solely on its own policy motivations *as if there were no judicial review*. Put simply, since the

Court upholds the Agency regardless of effort level, the Agency only takes into account its own implicit motivations and need not be concerned with the shadow of review. Specifically, the Agency seeks to maximize its expected payoff with respect to its effort investment, e . Let $\hat{e}_A(\beta, \kappa)$ denote this effort choice, defined as follows:

$$\hat{e}_A(\beta, \kappa) = \arg \max_e [-\beta V_\varepsilon(e) - \kappa e]. \quad (4.4)$$

That is, $\hat{e}_A(\beta, \kappa)$ is the Agency's optimal effort investment when the Court will always uphold. With the first two cases in hand — Agency effort facing perfectly skeptical and perfectly deferential Courts — I now turn to analysis when the Agency is confronted by a conditional-deference Court.

Constrained Agency Effort. The other, most interesting, possibility is that the Agency faces a conditional-deference Court. In this case the Agency is constrained by judicial review. It must invest at least effort $\underline{e}_C(t_A)$ to be upheld. This implies that the Agency's unconstrained effort investment when the Court always upholds is less than the Court's minimum acceptable threshold level of effort: $\hat{e}_A(\beta, \kappa) < \underline{e}_C(t_A)$. Accordingly, the Agency must decide whether it prefers to invest the threshold level of effort required by the Court to be upheld or zero effort and accept being reversed.⁵⁵ To analyze when the Agency would invest the required effort to be upheld (rather than zero effort), consider the maximum level of effort the Agency would be willing to invest in order to receive judicial deference. Denote this effort investment by $e_A^{\max}(t_A)$. This can be found by rearranging the Agency's incentive compatibility condition to invest the requisite amount of effort required by the Court to be

⁵⁵Note that if the Agency does not find it incentive compatible to invest the threshold level of effort to be upheld then it will invest no effort since the Court will still reverse it for positive, but below the threshold, effort. The logic for this is the same as in the case of a perfectly skeptical Court.

upheld (relative to investing zero effort and being reversed). The Agency's net expected payoff from investing effort at least as high as the Court's threshold $\underline{e}_C(t_A)$ is given by,

$$\Delta U_A(e \geq \underline{e}_C(t_A); \rho_{-A}) = \beta(t_A^2 + V_F - V_\varepsilon(e)) - \kappa e + \pi. \quad (4.5)$$

It is incentive compatible for the Agency to make this effort investment if and only if $\Delta U_A(e \geq \underline{e}_C(t_A); \rho_{-A}) \geq 0$. Solving for e so that this expression holds with equality yields the maximum effort investment, given t_A , an Agency would be willing to make given incentive compatibility:

$$e = \frac{\beta(t_A^2 + V_F - V_\varepsilon(e_A^{\max}(t_A))) + \pi}{\kappa}. \quad (4.6)$$

To ensure that this level of effort investment always exists, given $e \in [0, 1]$, I further define the Agency's maximum level of effort investment to be upheld by a conditional-deference Court as follows,

$$e_A^{\max}(t_A) = \max \left[\min \left[\frac{\beta(t_A^2 + V_F - V_\varepsilon(e_A^{\max}(t_A))) + \pi}{\kappa}, 1 \right], 0 \right]. \quad (4.7)$$

Equation 4.7 says that if the RHS of Equation 4.6 drops below zero then the Agency is not willing to invest any effort to be upheld and if it rises above one the Agency is willing to make maximal effort investments to be upheld. Otherwise, the maximum effort investment the Agency is willing to make is on the interior of the effort interval $[0, 1]$ and, by continuity, an incentive compatible investment level always exists.⁵⁶

Put simply, if $e_A^{\max}(t_A) \geq \underline{e}_C(t_A)$ then the Agency invests the threshold level of effort, $\underline{e}_C(t_A)$, in equilibrium and is upheld. If, however, $e_A^{\max}(t_A) < \underline{e}_C(t_A)$ then the Agency invests zero

⁵⁶I will typically discuss this maximum effort investment in terms that suggest a solution on the interior of $[0, 1]$ as this is the most interesting case.

effort and is reversed by the Court. The combination of these cases: Agency effort facing a (1) perfectly skeptical Court; (2) perfectly deferential Court; and (3) conditional-deference Court all combine to give the Agency's equilibrium effort investment strategy, given by the following expression:

$$s_A^{e*} = \begin{cases} \hat{e}_A(\beta, \kappa) & \text{if } \hat{e}_A(\beta, \kappa) \geq \underline{e}_C(t_A), \\ \underline{e}_C(t_A) & \text{if } \hat{e}_A(\beta, \kappa) < \underline{e}_C(t_A) \text{ and } e_A^{\max}(t_A) \geq \underline{e}_C(t_A), \\ 0 & \text{if } \hat{e}_A(\beta, \kappa) < \underline{e}_C(t_A) \text{ and } e_A^{\max}(t_A) < \underline{e}_C(t_A), \end{cases} \quad (4.8)$$

where $\hat{e}_A(\beta, \kappa)$ is implicitly defined by Equation 4.4, $\underline{e}_C(t_A) \equiv e$ such that $V_F - V_\varepsilon(e) = (t_A - t_C)^2 - t_C^2$, and $e_A^{\max}(t_A)$ is implicitly defined by Equation 4.7.

There are a few aspects of the Agency's equilibrium effort investment strategy, s_A^{e*} , worth noting further. First, notice that the presence of a reviewing court can induce higher levels of effort investment than the Agency if there were no review. This is the second case of s_A^{e*} in which $\hat{e}_A(\beta, \kappa) < \underline{e}_C(t_A)$ and $e_A^{\max}(t_A) \geq \underline{e}_C(t_A)$. Conversely, the Court can also induce the Agency to invest lower effort than it would if it were unconstrained. This is the third case of s_A^{e*} in which $\hat{e}_A(\beta, \kappa) < \underline{e}_C(t_A)$ and $e_A^{\max}(t_A) < \underline{e}_C(t_A)$. In this case the Court provides a “bail out effect” for the Agency. Since implementation effort is costly, the Agency is deterred from investing any effort at all because the Court will not allow outcomes to turn out worse than the reversion level of policy precision (V_F), which in this case (holding the Agency's bias constant) is not *bad enough* to induce the Agency to invest more effort.

Second, notice that the Agency will only invest positive effort if it will be upheld by the Court. If the Agency invests any positive effort then it is either the case that the Agency is unconstrained because its own motivations drive it to invest high enough effort regardless of

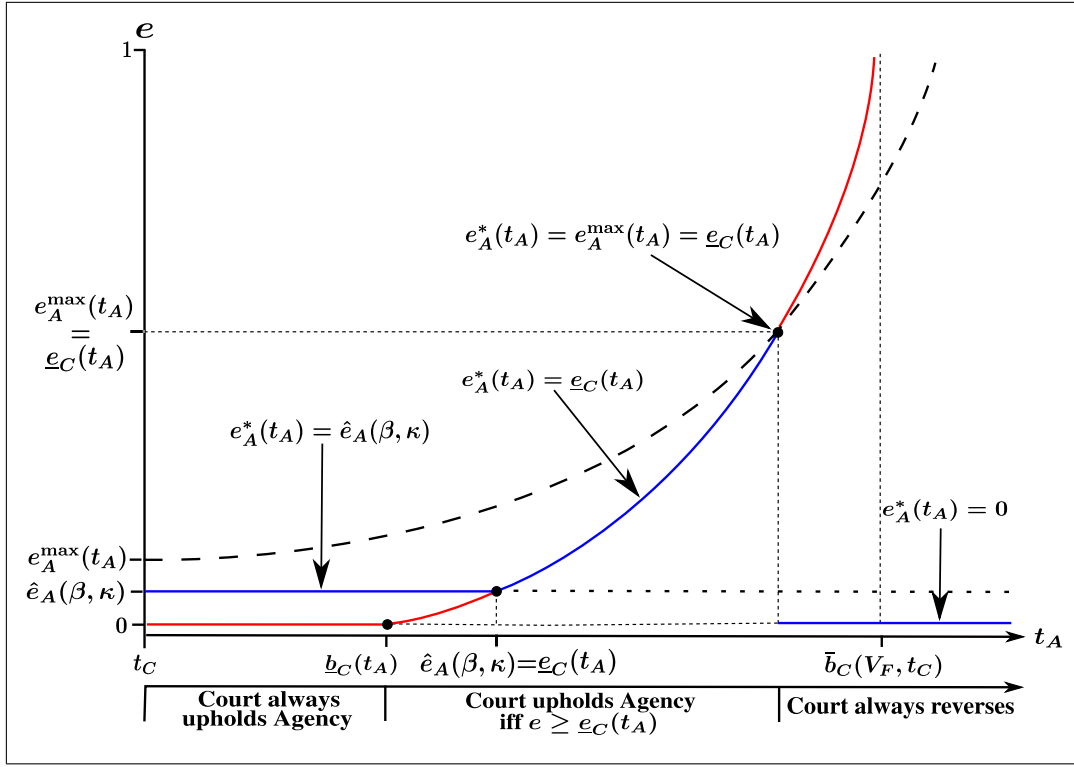


Figure 4.1: An Example of Equilibrium Agency Effort.

judicial review or because the Agency is constrained by the Court but finds it beneficial to make the effort investment required to be upheld. In either case the Court does not reverse the Agency and, therefore, positive effort will only be observed in equilibrium if the Agency will not be reversed.

Figure 4.1 displays an example of the Agency's equilibrium effort investments graphically and Table 4.1 provides a reference for the many thresholds and effort levels relevant in the figure for both the Agency and Court. The x-axis in Figure 4.1 is the Agency's bias, t_A , relative to the Court, t_C . The Agency becomes increasingly biased relative to the Court moving left to right. The y-axis denotes effort investments, $e \in [0, 1]$. The dotted (flat) black line denotes $\hat{e}_A(\beta, \kappa)$, the level of effort the Agency invests when it is always upheld (as if there were no

Threshold	Description
$\underline{e}_C(t_A)$	Court's minimum acceptable effort threshold for granting deference to the Agency
$\underline{b}_C(t_A)$	Max Agency bias s.t. when $e = 0$, uphold (if $t_A \leq \underline{b}_C(V_F, t_C) \Rightarrow$ uphold always)
$\bar{b}_C(V_F, t_C)$	Max Agency bias s.t. when $e = 1$, uphold (if $t_A > \bar{b}_C(t_A) \Rightarrow$ reverse always)
$\hat{e}_A(\beta, \kappa)$	Agency effort given $r = 0$ (uphold) always (as if there were no judicial review)
$e_A^{\max}(t_A)$	Max effort Agency with bias t_A is willing to invest to be upheld
$e_A^*(t_A)$	Equilibrium effort of Agency with bias t_A

Table 4.1: Thresholds for Agency-Court Sub-game.

review). The dashed black (increasing) line denotes $e_A^{\max}(t_A)$, the highest level of effort an Agency with bias t_A is willing to invest to be upheld. The red solid line denotes $\underline{e}_C(t_A)$, the minimum threshold level of effort for the Court to uphold an Agency with bias t_A . All the solid blue lines represent $e_A^*(t_A)$, the actual equilibrium effort investment by an Agency with bias t_A as in s_A^{e*} .

How equilibrium effort changes in Agency bias is dictated in the figure by the Court's threshold level of acceptable effort (the red line) and the bias related thresholds, $\underline{b}_C(t_A)$ and $\bar{b}_C(V_F, t_C)$. When the Agency's bias is less than $\underline{b}_C(t_A)$, the Court's threshold $\underline{e}_C(t_A)$ is zero. The Court cannot credibly require any positive effort investment from the Agency at those lower levels of bias. Past that point, however, the Court's threshold begins to rise. The Agency is now required to invest some positive effort to enjoy judicial deference. The Agency continues to simply invest its own preferred level of effort $\hat{e}_A(\beta, \kappa)$ as if it were not being reviewed (case 1 in s_A^{e*}) until the Court's threshold level of acceptable effort is high enough so that it requires the Agency to invest more effort than it would based on its own

motivations. At this point $e_A^{\max}(t_A)$ comes into play. As long as $e_A^{\max}(t_A) \geq \underline{e}_C(t_A)$ then the Agency invests effort $e^*(t_A) = \underline{e}_C(t_A)$ (case 2 in s_A^{e*}).⁵⁷ At the point at which the Court's threshold and the Agency's maximum level of effort to be upheld are exactly equal we have that $e_A^*(t_A) = e_A^{\max}(t_A) = \underline{e}_C(t_A)$. The Agency is investing as much effort as it would be willing to and the Court is requiring exactly that maximal level of effort as its minimum level of acceptable effort. An Agency biased past this point no longer finds it incentive compatible to invest the Court-required threshold level of effort to be upheld (since now $e_A^{\max}(t_A) < \underline{e}_C(t_A)$) and, accordingly, invests zero effort and the Court reverses (case 3 of s_A^{e*}).

The intuition from the figure illustrates the equilibrium of the Agency-Court policymaking sub-game, formalized in the following proposition.

Proposition 7. *The PBE of the policymaking sub-game between the Agency and the Court is a set of strategies and beliefs $(s_A^{e*}, s_A^{x*}, s_C^*, \mu_C)$ in which,*

1. *the Agency invests effort according to s_A^{e*} ,*
2. *the Agency chooses its ideal policy $(s_A^{x*}(\omega))$, and*
3. *the Court makes judicial review decisions according to $s_C^*(e)$.*

The next section explores how Agency effort investments vary in several parameters of the model based on whether the Agency's effort levels are affected by judicial review (*i.e.*, whether the Agency is unconstrained or constrained by the Court).

⁵⁷In the figure this is where the solid blue line denoting actual equilibrium Agency effort and the red line denoting the Court's threshold level of acceptable effort overlap (and it is shaded blue).

4.3.3 Agency Effort Choices and Judicial Review

The previous sections outlined how judicial review can have differential effects on Agency effort investments when implementing policy conditional on whether it constrains Agency decision-making. In this section I characterize how effort investments respond to changes in underlying parameters. First, recall that when the Court is unable to commit to ever reversing agency-made policy the Agency invests effort $\hat{e}_A(\beta, \kappa)$. A straightforward inspection of this effort choice (Equation 4.4) characterizes the comparative statics in this case. Intuitively, the Agency makes higher effort investments when the Court cannot commit to reversing its actions as its policy motivations, β , increase. This could be situations in which a higher β denotes a stronger commitment to Agency mission (Wilson, 1989) or perhaps agencies with stronger implicit motivations are staffed with a higher ratio of zealots (Gailmard and Patty, 2007). The more intense an Agency's policy preferences, the more effort it invests when it knows it will always be upheld.⁵⁸ Similarly, when the Court cannot commit to reversing, the Agency's effort investment is negatively correlated with effort costs, κ . This suggests that agencies authorized to administer policy in more complex policy areas where costs are higher and effective implementation more onerous may, all else equal, make lower effort investments than agencies operating in less complex, and less costly, policy areas. Notice that neither judicial review (through the parameter π) nor the Agency's bias (t_A) play a role in effort investments in this case.

In contrast, when the Court can credibly overturn the Agency if it observes insufficient effort, the Agency is constrained by judicial review and more parameters play a role in effort decisions. Recall that in this case the Agency decides whether to invest sufficient effort to

⁵⁸Note that this is equivalent to the effort the Agency would invest if there were no judicial review, a point to which I return in section 4.3.4.

be upheld by the Court or zero effort and accept being reversed. This choice depends on the Agency's net expected payoff for effort investments at the Court's threshold in Equation 4.5. Inspection of this case shows that the likelihood that the Agency will invest $\underline{e}_C(t_A)$ rather than zero effort is increasing in the Agency's policy motivations β and decreasing in effort costs κ , as in the unconstrained case above. However, in this case the incentives for the Agency to increase its investment to the Court's threshold are also increasing in the resulting increase in policy precision ($V_F - V_\varepsilon(e)$) as well as the Agency's bias (t_A), and aversion to being reversed, π . The more biased and the more reversal-averse the Agency is, the more effort it is willing to invest to be upheld. The most interesting insight from these comparative statics is formalized in the following result.

Proposition 8. *Policy bias impacts Agency effort if and only if judicial review also impacts Agency effort.*

If effective implementation of policy, which is affected by agency effort, is a concern then judicial review affects that effort only if the Agency's bias does as well, and vice versa. This implies that judicial review of agencies only has an impact on policymaking behavior if the agency's bias also impacts that behavior. Similarly, the bias of the agency does not affect the amount of effort the agency invests toward effectively administering policy if there is no meaningful (credible) reviewability of its actions. This raises the question: from the legislature's point of view, what is the optimal level of bias in light of judicial review's affect on agency effort incentives?

4.3.4 The Instrumental Value of Politicized Policymaking

Optimal Agency Bias without Judicial Review

To begin the analysis of the Legislature's choice of Agency bias, consider a situation in which there is no credible judicial review of Agency policy actions. This situation is one in which the Legislature delegates all policymaking authority to the Agency with no ex post check on agency decision-making. It serves as a baseline case that, coupled with the results below, highlights how the presence of meaningful judicial review structures the incentives for legislative design of administration agencies. The following result characterizes optimal agency bias in this environment.

Proposition 9. *When there is no judicial review of agency policy actions the Legislature always chooses an Agency with the same ideal point (i.e., $t_A^* = t_L = 0$).*

The logic for this result is straightforward. First, recall that the Agency always sets policy sincerely (i.e., at its ideal point) so that $x^* = \omega + t_A$. From Equation 4.4, the Agency, when unconstrained, invests effort $\hat{e}_A(\beta, \kappa)$. This, coupled with the fact that Agency bias impacts its effort choice if and only if being reviewed does as well (Proposition 8), highlights the fact that the Agency invests effort based on its own motivations (in particular β and κ) independent of the Legislature's choice of t_A . Thus, the Legislature, since it cannot impact Agency effort through its choice of t_A , optimally creates an ally agency.

Optimal Agency Bias with Judicial Review

In this section I explore the optimal choice of Agency bias from the Legislature's perspective when there is judicial review. In what follows I will assume that the Legislature does not

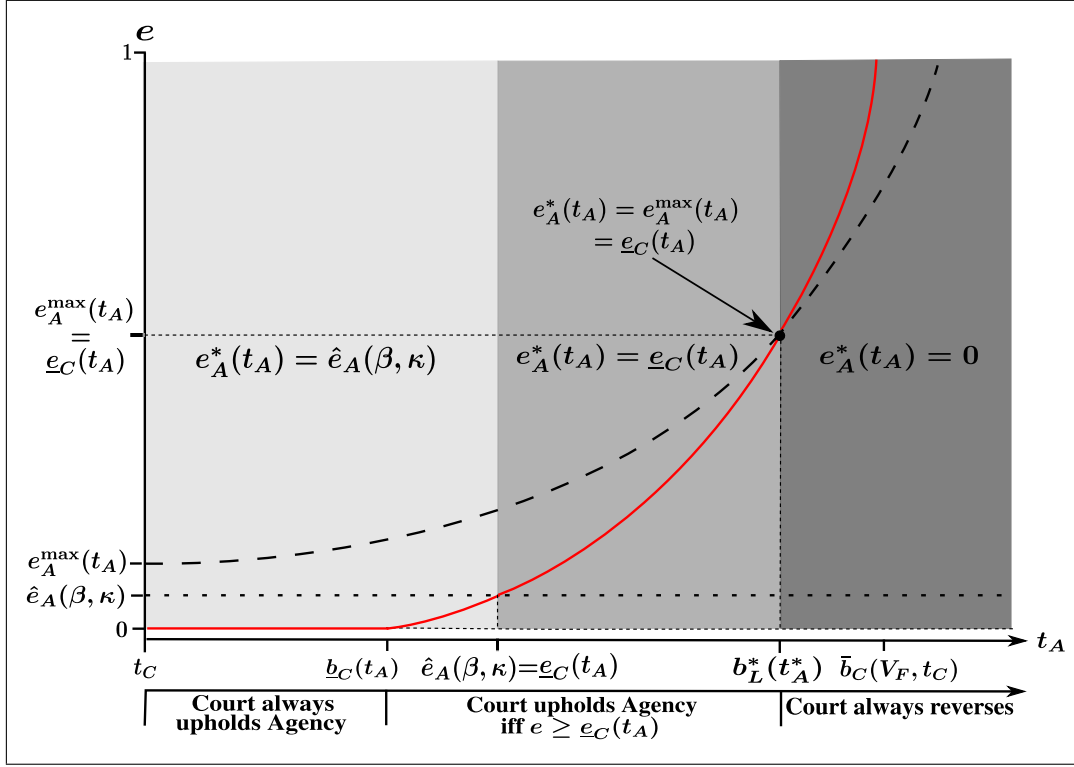


Figure 4.2: An Example of Optimal Legislative Choice of Agency Bias.

benefit from setting a t_A so that the Court overturns. This precludes environments in which the Court is so biased away from the Legislature that there is no Agency ideal point the Legislature would choose that leads to the Court upholding. Essentially, this assumption ensures a focus on realistic scenarios in which there is an Agency the Legislature can choose that would lead to policymaking behavior that induces the Court to uphold.

In the process of deciding where to choose t_A the Legislature takes into account the dynamics of the Agency-Court sub-game characterized above and depicted graphically in Figure 4.1. That is, the Legislature knows its choice of t_A will affect the impact (or lack thereof) that judicial review has on Agency effort incentives. Let $b_L^*(t_A^*)$ denote the Legislature's optimal choice of Agency bias. Recall that $t_C < 0$ so that the Court is located to the left of the

Legislature ($t_L = 0$). Figure 4.2 graphically displays the Legislature's optimal choice of Agency bias in light of Agency-Court interactions. The shaded regions illustrate different equilibrium effort based on agency bias (the x-axis). Each region is labeled accordingly with the Agency's equilibrium effort in that region. From Figure 4.1, when Agency bias is less than $\underline{b}_C(t_A)$ it invests effort based on its own motivations (as if there were no review) since the Court always upholds. This effort investment is denoted by the dotted black line labeled $\hat{e}_A(\beta, \kappa)$. Past the point at which $\hat{e}_A(\beta, \kappa)$ and $\underline{e}_C(t_A)$ intersect the Agency invests the threshold level of effort required to be upheld as long as $e_A^{\max}(t_A) \geq \underline{e}_C(t_A)$. The black dashed and red solid lines represent $e_A^{\max}(t_A)$ and $\underline{e}_C(t_A)$, respectively.

However, once the Agency becomes too biased (i.e., t_A such that $e_A^{\max}(t_A) < \underline{e}_C(t_A)$) it is no longer incentive compatible for the Agency to invest enough effort to be upheld. So, the Agency invests zero effort and the Court overturns the Agency. Thus, the Legislature sets Agency bias at this intersection, labeled $b_L^*(t_A^*)$. This is the point at which the Agency is as biased as it can be such that it invests maximal effort (from its perspective) and the Court will uphold based on that effort. The Agency, however, responds to judicial oversight regardless of whether it is to the left (further from the Legislature) or the right of the Court (toward the Legislature). That is, the impact of judicial review on Agency effort investment is symmetric with respect to its location from the Court (above or below). The next result precludes creating an Agency on the opposite side of the Court (i.e., an Agency more extremely biased than the Court on the same side of the Legislature).

Proposition 10. *The Legislature never gains from setting t_A at a greater distance from its ideal point than is the ideal point of the Court (t_C).*

Proposition 10 establishes the directionality of the Legislature's choice of agency bias relative to the Court. Recall that $t_C < 0$ by assumption so that the Court's ideal point is to left

of the Legislature. So, Proposition 10 says that the Legislature chooses $t_A^* > t_C$ so that the Agency's ideal point is to the right of the Court. While this result establishes directionality, it does not establish *how far* from the Court's ideal point the Legislature optimally designs the Agency.

To begin to explore the answer to this question, consider the best case scenario for the Legislature. If t_C is biased exactly far enough from zero, the Legislature can optimally set $t_A^* = 0$. In this scenario the Legislature is able to enjoy increased effort investments from the Agency while losing nothing in the way of spatial policy choice. This is obviously a knife-edge case that is unlikely to realistically obtain often. Further, it is an extreme case in the sense that for this environment to hold the Court must be highly biased away from the Legislature. For the remainder of this section I will assume that t_C is not extreme enough to allow for this best case scenario. Instead, I will focus on the more realistic case in which the Court's ideal point is closer to the Legislature's.

Consider, then, an environment in which the Court is moderately biased away from the Legislature (again, suppose $t_C < 0$).⁵⁹ In this case the Legislature cannot choose an ally Agency per the argument above. The following result describes how the Legislature chooses a biased Agency in this environment.

Proposition 11. *Suppose that the Legislature cannot obtain the best case scenario outcome given t_C in which $t_A^* = 0$. Then, the Legislature always sets t_A as extreme as possible away from the Court, in the direction of its own ideal point, conditional on the Agency continuing to invest effort that leads to the Court upholding agency-made policy.*

⁵⁹By 'moderately biased' I simply mean not so biased that the Legislature can institute the best case scenario discussed above.

Recall that the Legislature is choosing t_A so that the Court upholds the Agency. Further, suppose that the Legislature chooses t_A^* to solve the Court's incentive compatibility constraint to uphold with equality:

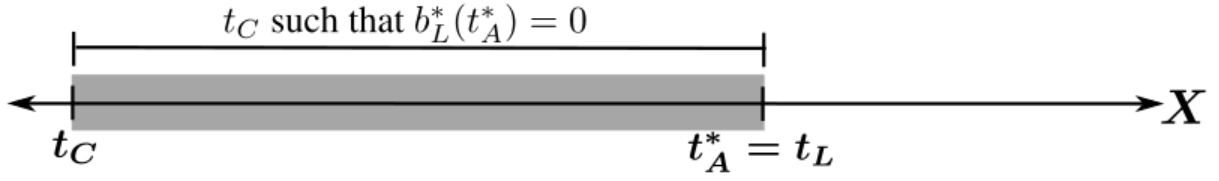
$$V_F = (t_A^* - t_C)^2 - t_C^2 + V_\varepsilon(e_A^*(t_A^*)).$$

So, the Court is indifferent from upholding or reversing the Agency given the induced equilibrium effort investment, $e_A^*(t_A^*)$, and the Agency's bias. Now consider the Legislature's incentive compatibility condition to set t_A in this way:

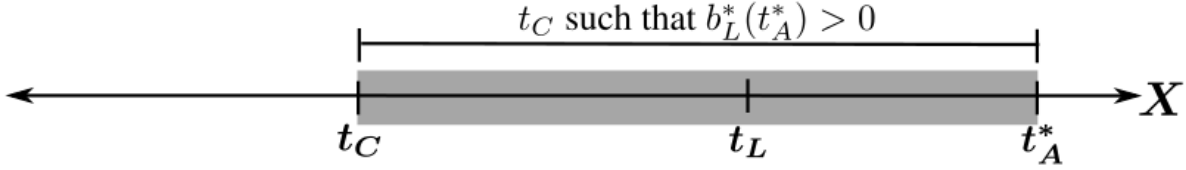
$$V_F = t_A^{*2} + V_\varepsilon(e_A^*(t_A^*)).$$

Provided that t_A and t_C are oppositely signed, increasing $t_A > 0$ costs the Court more in terms of spatial policy choice losses than the Legislature. This means that the reduction in implementation variance, $V_\varepsilon(e_A^*(t_A^*))$, more than offsets the losses incurred by the Legislature from biasing the Agency. This is because the Court requires more effort from the Agency to offset its own losses, which are greater than those borne by the Legislature. Thus, given that the Court will uphold, the increase in Agency effort when $t_C < 0$ and $t_A > 0$ always outweighs an increase in bias.⁶⁰ If the Legislature were to bias the Agency past the point at which the Court will uphold even with maximal effort, the Agency will revert to zero effort investment and the Court will overturn (contradicting the assumption that this harms the Legislature). Conversely, if the Legislature were to set Agency bias less than t_A^* it will lose out on effort increases that would offset the losses associated with biasing the Agency to t_A^* . Thus, the Legislature always sets t_A^* as far from the Court as possible, on the opposite side of

⁶⁰This is also true for $t_C > 0$ and $t_A < 0$, but since I have focused on $t_C < 0$ throughout I continue with that assumption.



(a) Case in which t_C is exactly far enough away from $t_L = 0$ so that t_A^* is such that $b_L^*(t_A^*) = t_L$.



(b) Case in which t_C is more moderate so that the Legislature creates a biased Agency: t_A^* such that $b_L^*(t_A^*) > t_L$.

Figure 4.3: Examples of Optimal Institutional Arrangements for Legislature.

its own ideal point, conditional on the Agency still being upheld given its effort investment (e.g., $b_L^*(t_A^*)$ in Figure 4.2).

Figure 4.3 displays these possibilities graphically. Figure 4.3a is the first, knife-edge case in which t_C is exactly far enough from t_L so that it is optimal to appoint an ally agency ($t_A^* = t_L = 0$). In this case, the Legislature is able to enjoy the maximal effort investment it can induce through its choice of Agency ideal point while sacrificing nothing in the way of spatial policy losses. The second case, Figure 4.3b, represents an environment in which the Court is more moderate. In this case, the Legislature chooses a positively biased Agency opposite its ideal point from the Court. The Agency still invests the same effort as in the first case, but in order to enjoy that effort the Legislature must bias the Agency the same distance from t_C as in the first case. This illustrates that, except in extreme cases in which the Court's ideal point allows the Legislature to get this maximal effort *and* an ally Agency, the Legislature optimally creates an Agency on the opposite side of its ideal point from the

Court. That is, the Legislature benefits from creating a politicized policymaking system through agency design.

This analysis provides a foundation for understanding the optimal institutional arrangement from a principal’s perspective. Specifically, it provides an argument that cuts against the ally principle (Bendor and Meirowitz, 2004).⁶¹ Except under extraordinary circumstances, the Legislature benefits from the Court and Agency being on opposite sides of its ideal point. These results are driven by the interactions between political agency problems, agency bias, and the oversight’s effects on agency behavior. The Legislature is forced to trade off bias for increased effort investment when effective policy enforcement is a concern. Moreover, this dynamic is only present when there is judicial review (Proposition 8). This highlights the power of judicial oversight in providing incentives for agency effort investment. The Legislature cannot achieve increased effort without the looming threat of judicial reversal. Thus, the Legislature benefits from creating an adversarial, politicized policymaking system in which the Agency and the Court are pitted against one another ideologically.

4.4 Empirical Implications

The Legislature’s optimal choice of agency bias is responsive to changes in Agency characteristics such as policy motivation and aversion to being reversed by the Court. First, note that $\underline{e}_C(t_A)$ is increasing in t_A but is solely based on Court motivations and is unresponsive to Agency characteristics outside of bias. However, the location of the optimal level of bias from

⁶¹Bendor and Meirowitz (2004) also provide insight into when the ally principle may not hold. Most relevant their analysis that suggests that if a biased agent, relative to an ally, is more competent or more willing to work hard then it could be optimal for a principal to appoint a biased agent. This paper provides one possible microfoundation for why a biased agent may be incentivized to work harder: ex post oversight.

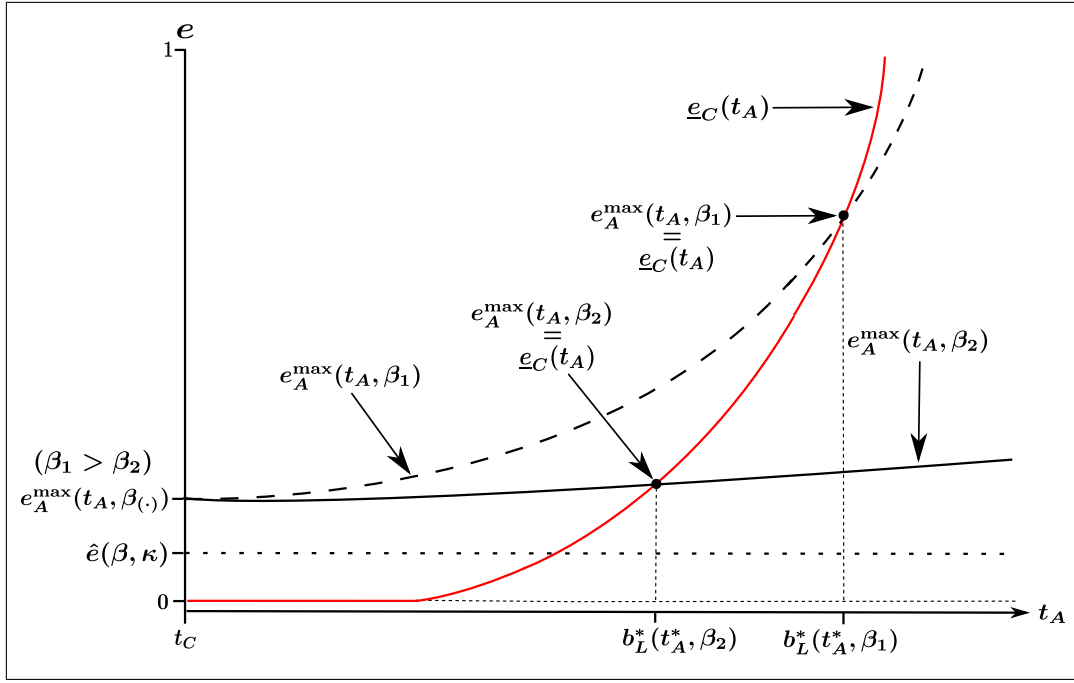


Figure 4.4: An Example of Legislative Choice of Agency Bias with Low and High Policy Motivations.

the Legislature's perspective, $b_L^*(t_A^*)$, is affected by changes in these Agency characteristics through their effect on $e_A^{\max}(t_A)$.

Consider differences between more and less policy motivated agencies. The higher is β , the more policy motivated the agency. This dynamic is depicted in Figure 4.4. The solid and dashed black lines represent agency maximal levels of effort to be upheld with relatively low and high policy motivations (*i.e.*, low and high β , respectively). As in the other figures, the red line represents the Court's threshold level of acceptable implementation effort. The agency with higher policy motivations (β_1) has a maximum effort investment it is willing to make to be upheld that is increasing in its bias much faster than the agency's effort with lower policy motivations (β_2). As the Agency becomes more policy motivated it is willing to invest higher levels of effort to be upheld and this maximum level of effort is increasing at a

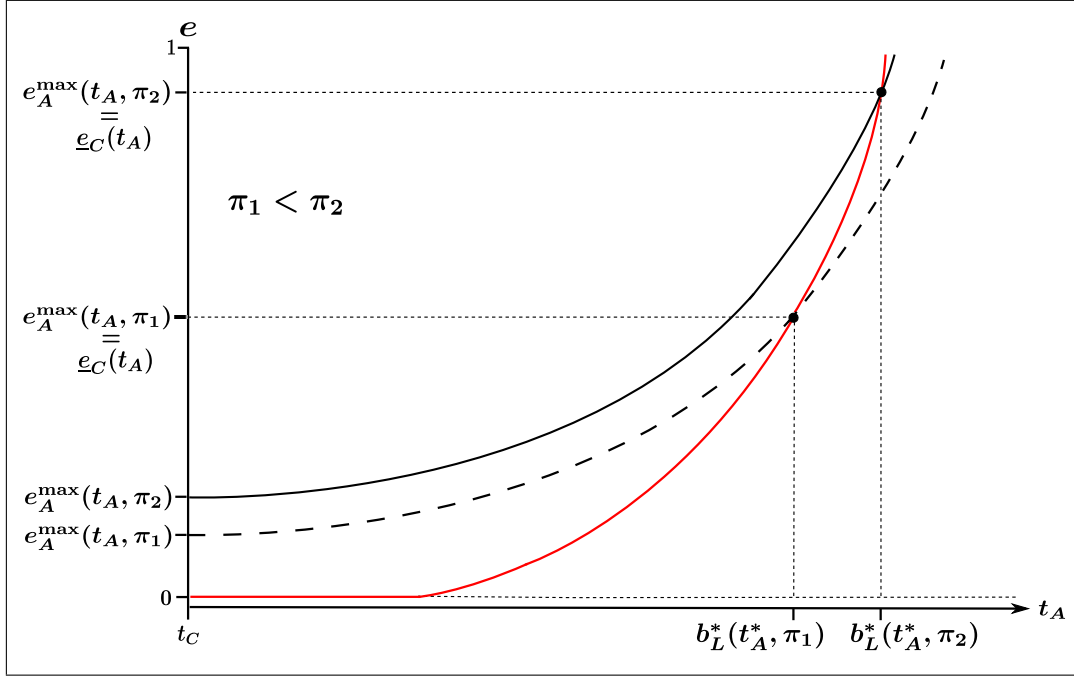


Figure 4.5: An Example Illustrating Complementarity of t_A and π .

much faster rate relative to agencies that are not as strongly policy motivated. Accordingly, the optimal level of agency bias is *more extreme* the more policy motivated the agency. That is, $b_L^*(t_A^*)$ is more extreme when β is larger. This provides a testable implication for observed levels of administrative agency bias. Agencies characterized by higher levels of policy motivation ought to be observed as more biased than their less policy motivated counterparts. The model suggests that we should observe a positive correlation between agency policy motivation and agency bias. This may reflect differences across the individual bureaucrats staffing agencies in terms of implicit motivations (Prendergast, 2007), the ratio of “zealots” to “slackers” (Gailmard and Patty, 2007), or the agency’s commitment to mission (Wilson, 1989).

Similarly, Figure 4.5 has two curves — $e_A^{\max}(t_A, \pi_1)$ and $e_A^{\max}(t_A, \pi_2)$ — differentiated only by the level of aversion an agency has to being reversed. The solid black line, $e_A^{\max}(t_A, \pi_2)$,

increases in agency bias at the same rate as the dashed black line, $e_A^{\max}(t_A, \pi_1)$, but is shifted up proportional to the difference between π_2 and π_1 , where $\pi_2 - \pi_1 > 0$. The agency more averse to being reversed is willing to invest more effort to be upheld holding bias (and other parameters) fixed. This illustrates the complementarity of agency aversion to being reversed by a court, π , and agency bias, t_A , with respect to agency effort levels. This shift in aversion to being reversed in court leads to a more extreme level of optimal bias from the Legislature's perspective. The more averse the agency is to being reversed, the more extreme the optimal level of agency bias. The model suggests a positive correlation, as in the case of policy motivation and bias above, between an agency's aversion to being overturned in court and agency bias. We should observe higher levels of agency bias the more severe the punishment for being reversed in court. Conversely, if a political principal cannot directly affect agency bias then it should adjust the severity of the punishment when the agency is reprimanded by an ex post reviewer. In the case of Congress, writing more stringent judicial review provisions into authorizing legislation when agency bias cannot be readily changed may help to realign the effort the agency is willing to invest to be upheld to a more desirable level.

Finally, and more generally, the model suggests that inferences regarding principal-agent preference congruence should be drawn carefully. In particular, the analysis in this paper suggests that a legislature, like Congress, may design and sustain biased policymaking agencies for instrumental reasons in light of the overarching policymaking system. Therefore, the observation that an agency is biased relative to its Congressional overseer — *e.g.*, a Congressional committee with oversight powers — does not necessarily imply agency subversion. That is, since agencies may be created or empowered *because they are biased* for instrumental reasons it could be the case that biased agencies are doing precisely what their political principals want them to do within the constraints inherent in the larger policymaking system. Overall, this suggests empirical studies of administrative policymaking should

take into account the dynamics of the overarching policymaking system and exercise caution when interpreting results that seem to suggest preference divergence between a political principal and its policymaking agent.

4.5 Conclusion

In this paper I developed a theory that offers explanations of how judicial review can impact the effort choices of administrative policymaking agencies and how these effects structure legislative incentives for the design and sustainability of biased agencies. Policy bias is used, in conjunction with the monitoring value of judicial review, to provide incentives for sufficient effort in policy implementation from agencies that would, all else equal, prefer to work less. If agency bias is of consequence to administrative effort then so is judicial review and judicial review serves no purpose with respect to effort incentives if agency bias is not purposive as well. The choice of allocating policymaking authority to a biased policymaking agency is, therefore, instrumental from the legislative perspective. Moreover, legislatures like Congress may design and authorize more or less biased agencies in order to induce higher levels of effort conditional on characteristics of the agency. In particular, agencies that are either more highly policy motivated or more averse to being overturned by courts — perhaps due to more severe consequences — will, *ceteris paribus*, be more biased than their less policy motivated or reversal-averse counterparts. The results also suggest that inferences from empirical observations in American policymaking ought to be made taking into account potential congressional selection effects and the limitations of judicial review as an instrument of control highlighted in this paper. Overall this paper contributes to our understanding of regulatory oversight, the existence and potential optimality of biased policymaking agencies,

and the interplay between different institutions central to the American policymaking process when both bureaucratic drift and slack are problematic.

Chapter 5

Designed to Work? The Impact of Oversight and Agency Characteristics on Administrative Effort Incentives

5.1 Introduction

A central concern in organizational management is how to properly motivate subordinates to work hard. This is particularly true in public bureaucracies. For instance, wages in public bureaucracy are not often tied to performance, which is a common motivational tool in private organizations (Goodsell, 2004; Prendergast, 2007, 2008; Wilson, 1989). Political principals are concerned with how to control bureaucratic agencies empowered to craft and implement public policies. On one hand principals must worry about bureaucratic subversion that arises from agencies' incongruent preferences over outcomes (Gailmard, 2002). On the other hand principals must also worry about providing the proper incentives for bureaucrats to invest sufficient effort in policy promulgations (Bueno de Mesquita and Stephenson, 2007).

One possible remedy to these concerns is subjecting agency actions to extensive ex post oversight in which the overseer can overturn or veto agency actions (McCubbins and Schwartz, 1984; Turner, 2014*b*). While oversight does produce, at times, desirable effort incentives there may be other strategies for motivating agencies to make higher effort investments (or, conversely, limit incentives for lower effort). Some well known examples include the appointment of more strongly biased agency heads or simply designing biased agencies (Turner, 2015), attempting to increase ‘commitment to mission’ (Wilson, 1989) or public service motivations (Moynihan and Pandey, 2007) within agencies, increasing the reversal aversion of agencies through increased performance-based penalties, or attempting to limit the effort costs borne by an agency. The question of interest then is: how can a political principal motivate an administrative agency to work hard while facing extensive oversight? Further, in light of oversight’s effects on agency effort, how do agency characteristics like policy motivations, aversion to being reprimanded by an overseer, and effort costs affect effort incentives?

In this chapter I show the ways in which oversight and agency bias interact with respect to effort incentives provide insight into managerial strategies for agency motivation. In particular, I provide counter-intuitive insights into how well-known attributes of agency design and the policy environment itself may be used to provide strong effort incentives for agencies. This implies a fundamental relationship regarding how oversight and agency bias interact to produce differential levels of administrative effort. In the next section I briefly discuss the agency-overseer sub-game equilibrium from the previous chapter. The focus is on how administrative effort is affected by oversight in equilibrium. Following that I explore how well-known characteristics of agency design and bureaucratic policymaking impact administrative effort conditional on the relationship between oversight and agency bias. The final section discusses the import of the results with respect to both normative

and empirical implications as well as a discussion of data that could be utilized to explore these implications empirically.

5.2 A Theory of Oversight and Administrative Effort

The comparative statics that will be discussed below are derived from the formal model developed in Chapter 4. While that chapter focused on questions of institutional design, this chapter utilizes results related to agency-specific characteristics and characteristics of the policy environment to discuss implications for agency design and delegation, managerial strategies to induce higher levels of effort, and empirical studies of bureaucratic policymaking. To that end I focus specifically on the dynamics of the agency-court sub-game equilibrium. The basic theory revolves around how ex post oversight, agency bias, and characteristics of the agency and policy environment interact to produce differential effort incentives. I briefly summarize the key components of the model and equilibrium below, which was characterized formally in the previous chapter.

Administrative Policymaking and Ex Post Review. Recall from Chapter 4 that the agency first chooses a level of effort investment, $e \in [0, 1]$, that affects the variance of the implementation shock ε so that the variance is strictly lower the higher the effort investment. Following this investment the agency learns the true state of the world and chooses the substantive content of policy by setting x spatially. Finally, the overseer (the court) observes the level of the agency’s effort investment and chooses to either uphold agency-made policy or overturn it and allow the agency-free reversion to obtain $(-\omega)$.⁶²

⁶²In this chapter I will refer to the “overseer” rather than the “court” as I did in Chapter 4 to focus more generally on how effort can be affected given any type of oversight institution similar to judicial review.

The overseer employs a threshold review rule in equilibrium. Taking into account the fact that the agency will always set policy sincerely, the overseer upholds the agency if and only if the agency has invested in sufficiently high effort given its bias. At times the overseer cannot credibly commit to ever upholding the agency. This would be the case, for example, if the agency is so biased that even maximal effort will not offset the spatial losses the overseer would internalize if it were to uphold. Conversely, if for instance the policy environment without agency intervention is extremely volatile, the overseer can never commit to overturning the agency. Finally, and most interestingly, there are cases in which the overseer will uphold the agency if and only if the agency has invested effort at or above the overseer's threshold level of required effort. This occurs when the agency is not so biased that the overseer will never uphold, but is biased enough so that oversight has some bite. That is, for intermediate ranges of agency biases the overseer's threshold is more stringent than what the agency would choose to invest if left to its own motivations but not too stringent to preclude the agency from finding it incentive compatible to invest in enough effort to meet that threshold. The overseer's threshold level of acceptable effort investment to uphold the agency is increasing in the agency's bias.

From the agency's perspective, when it is not too biased and oversight not too stringent the agency will only invest in effort based on its own motivations. That is, oversight does not constrain the agency's effort investment. If the agency is too biased, for instance, so that the overseer will never uphold its actions then the agency intuitively invests nothing in ex ante effort and accepts being overturned. However, for an intermediate range of potential agency biases, the agency must decide between investing no effort and being overturned and investing enough effort to meet the overseer's threshold to uphold. As long as investing that threshold level of effort is incentive compatible from the agency's perspective it will choose exactly that level of effort investment and be upheld by the overseer. While the overseer's

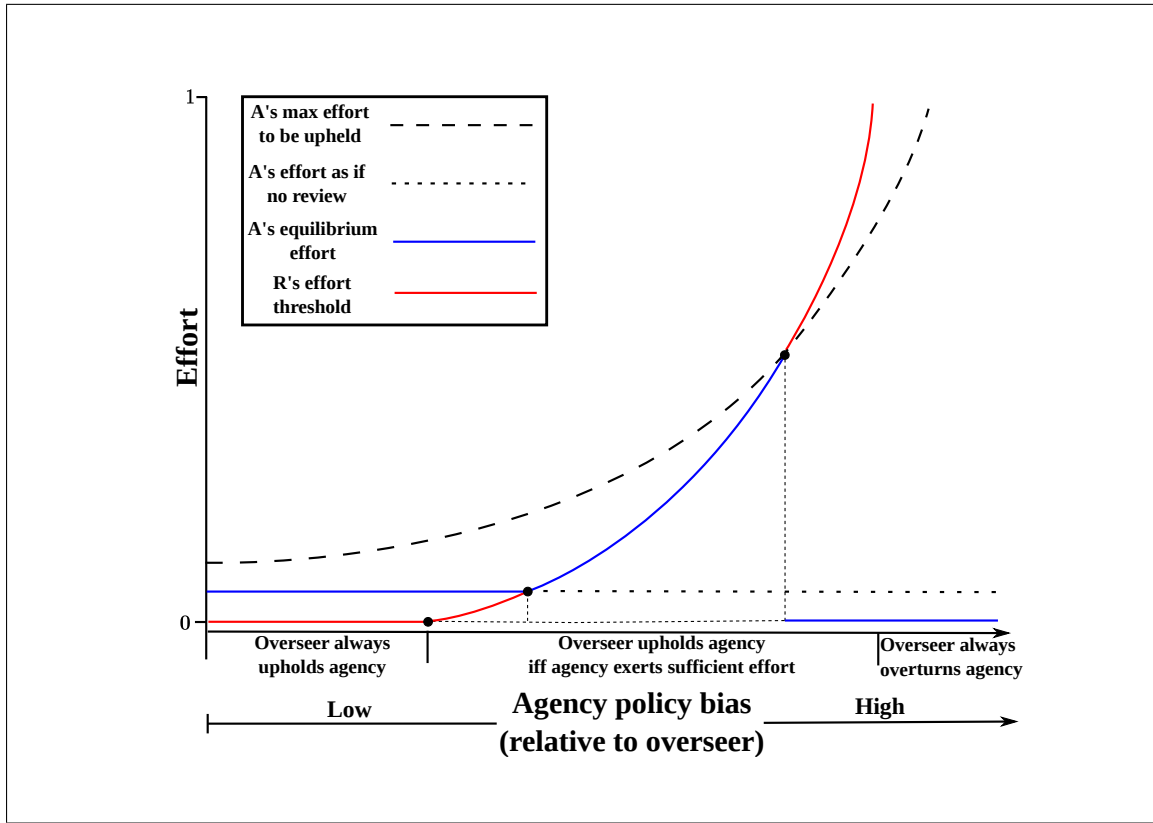


Figure 5.1: An Example of the Equilibrium

threshold is becoming increasingly stringent as the agency becomes more biased, so to is the maximum level of effort the agency is willing to invest to be upheld. That is, as the agency becomes more biased relative to the overseer it is willing to invest higher levels of effort to be upheld.

An example of the equilibrium is displayed graphically in figure 5.1. The y-axis captures the agency's effort level from 0 to 1. The x-axis captures the absolute bias of the agency relative to the overseer. Agency ideal points become more biased moving left to right. The wide dashed line denotes the maximal level of effort an agency would ever invest to be upheld by the overseer given its bias. The flat dotted line denotes an agency's effort when

oversight does not impact effort (or as if there were no oversight). The red line depicts the overseer's threshold level of effort required to uphold an agency given its bias. Finally, the parts of the lines that are blue represent actual effort in equilibrium. The first portion of blue line represents a case in which oversight does not impact agency effort. It is flat because agencies within that range all invest the same level of effort regardless of their bias.⁶³ This is because effort is dictated solely by the agency's own implicit motivations, namely its policy motivations and the cost of effort, which are held constant. The next portion of blue shaded line tracks the overseer's effort threshold exactly. This is when oversight does impact agency effort. Agencies with biases within that range choose between investing the threshold required to be upheld and no effort at all and being overturned. As long as the dashed line, denoting the maximal level of effort an agency would ever invest to be upheld, is weakly above the overseer's threshold (the red line) the agency invests in effort exactly equal to that threshold to be upheld.⁶⁴ Finally, once agencies become too biased they invest no effort at all. This is depicted in the figure by the third blue line.⁶⁵ For that range of agencies the maximal level of effort they would be willing to invest to be upheld (the dashed line) drops below the overseer's threshold level of required effort (the red line). Therefore, it is never incentive compatible for agencies with biases within that range to invest any effort. Oversight has become too stringent for agencies with that level of bias.

Finally, note that both the stringency of oversight (the overseer's effort threshold) and the level of effort the agency is willing to invest to be upheld (the dashed line) are increasing in agency bias. The more biased the agency, the more stringent is oversight and the more effort

⁶³In particular, from Chapter 4, the relevant calculation for the agency is given by equation 4.4: $\hat{e}_A(\beta, \kappa) = \arg \max_e [-\beta V_\varepsilon(e) - \kappa e]$. As can be seen from simple inspection, the agency's bias, t_A , plays no role in this calculation.

⁶⁴Specifically, from Chapter 4, the relevant equations are equation 4.7: $e_A^{\max}(t_A) = \frac{\beta(t_A^2 + V_F - V_\varepsilon(e_A^{\max}(t_A))) + \pi}{\kappa}$, and $\underline{e}_C(t_A) \equiv e$ such that $V_F - V_\varepsilon(e) = (t_A - t_C)^2 - t_C^2$ (the threshold). Provided $e_A^{\max}(t_A) \geq \underline{e}_C(t_A)$ the agency invests effort at that threshold and is upheld.

⁶⁵This is the case when $e_A^{\max}(t_A) < \underline{e}_C(t_A)$ from Chapter 4.

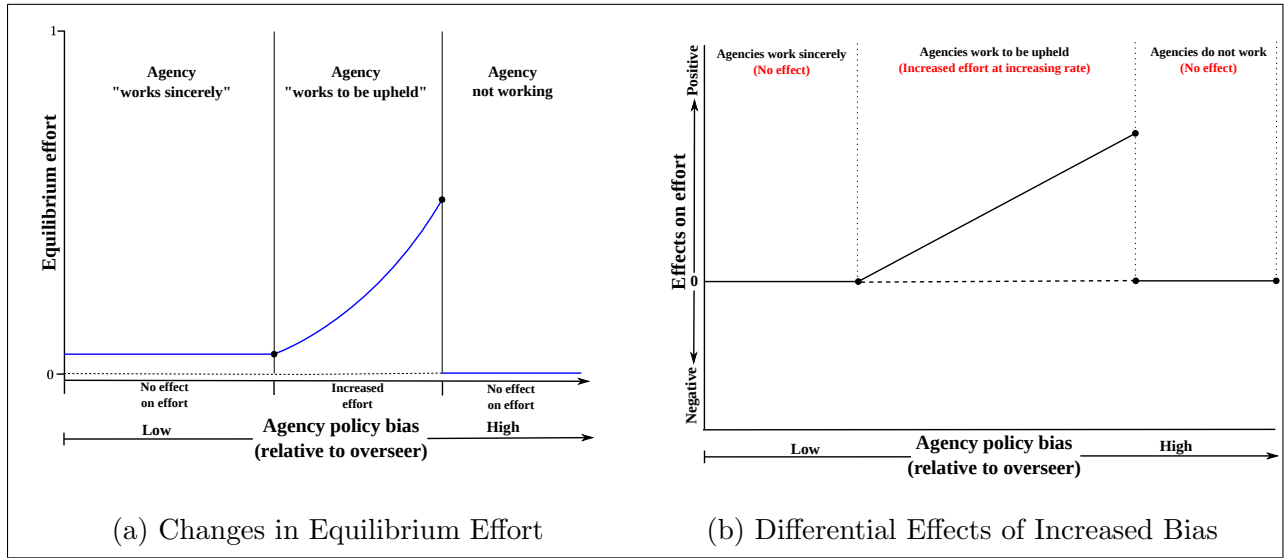


Figure 5.2: Effects of Increased Agency Bias on Agency Effort

the agency is willing to invest to be upheld. From the overseer's perspective, the further the agency's ideal point the more effort it will have to invest to offset potential spatial policy losses incurred by upholding. From the agency's perspective, the more biased it is the more it has to lose in terms of spatial policy if it has its actions overturned. This highlights a fundamental relationship between agency bias and administrative effort in the face of ex post oversight, the dynamics of which are discussed next.

5.3 Oversight, Agency Bias, and Administrative Effort

In the equilibrium presented above there are three distinct oversight regions that dictate how much of an effort investment the agency will make conditional on its bias. Figure 5.2a displays equilibrium effort for these different ranges of agency biases. The axes are defined as in figure 5.1. The first region, labeled 'Agency "works sincerely",' denotes the region where oversight has no impact of effort. Agencies with biases within that range invest the

same level of effort independent of bias. That is, these low-biased agencies invest effort based on their own policy motivations and effort costs. The second region, labeled ‘Agency “works to be upheld”,’ is the region where oversight positively impacts administrative effort in equilibrium. Agencies with biases that fall within this range make effort investments equal to what is required to be upheld by the overseer. Finally, the third region characterizes a range of agencies that are too biased or find it incentive incompatible to invest enough effort to be upheld by the overseer. Highly-biased agencies that fall within this range either cannot or are not willing to make effort investments sufficient to be upheld by the overseer. Therefore, they invest zero effort and accept being overturned. This implies that oversight only has positive effort incentive effects (holding other parameter values constant) on a range of intermediately biased agencies. This point is illustrated graphically in figure 5.2b. For these intermediately biased agencies, oversight increases equilibrium effort at an increasing rate as the particular agency empowered to make policy becomes more biased.

This relationship between oversight, bias, and effort suggests that in this context the ally principle is only optimal for a principal designing or delegating to an agency when there is no effective oversight.⁶⁶ Otherwise, the way that administrative effort increases in agency bias implies that a principal benefits from intermediately biased agencies when subjecting those agencies to oversight. This is consistent with existing theoretical work on the effects of oversight on agency effort (Turner, 2014*b*, 2015) and, more generally, on providing incentives for agency effort when wage contracts or monetary incentives are not sufficient (e.g., Prendergast, 2007, 2008).

Another implication is that empirical inferences regarding agency compliance should be made carefully. At times political principals may empower biased agencies for instrumental reasons

⁶⁶See Bendor and Meirowitz (2004) for a comprehensive presentation and discussion of the ally principle.

(e.g., effort incentives) so attempting to infer agency non-compliance based on congruence of ideal point estimates or divergent policy choices may lead to faulty conclusions. These possibilities may simply signal a principal making delegation or institutional design decisions in the face of systemic constraints (e.g., limitations of oversight).

The major takeaway from this section is that oversight and bias go hand-in-hand to produce effort incentives. Oversight impacts administrative effort if and only if agency bias does as well. Agencies can be motivated to work harder by subjecting them to extensive oversight only if they are sufficiently biased. However, what if a principal cannot directly impact agency bias (e.g., a newly elected President inherited well-established, entrenched agencies)? There are other managerial strategies related to other characteristics of agencies that can be employed to attempt to induce higher effort. The next section explores these possibilities.

5.4 Agency Characteristics and Administrative Effort

The above section highlighted the ways in which oversight and agency bias interact to produce effort incentives for bureaucratic policymaking. In this section I explore how attempting to alter other agency characteristics can help to incentivize higher levels of administrative effort, perhaps helping to fill the gaps left by oversight. In what follows I provide counter-intuitive comparative statics that highlight when and why different managerial strategies can induce higher administrative effort. Many of these strategies can provide these effort incentives when oversight fails to do so. That said, there are also limitations to these strategies as well.

5.4.1 Agency Effort and Policy Motivations

One characteristic of bureaucratic agencies that has long been recognized as important to reducing slack or shirking is the agency's policy motivations. Wilson (1989) argues that "having a sense of mission is the chief way by which managers overcome the problem of shirking in organizations" (p. 95). Improving the sense of mission increases an agency's collective commitment to accomplishing organizational goals. Bureaucrats are more likely to be motivated to work hard to accomplish these goals the stronger the sense of mission within the agency. Wright (2007) shows that mission and public service motivation (PSM) are positively related, lending further empirical evidence to support the assertion that an agency's sense of mission impacts motivational incentives within the bureaucracy. Similarly, Moynihan and Pandey (2007) show that more 'red tape' is negatively correlated and hierarchical authority is positively correlated with PSM. All of this suggests that principals could seek to strengthen an agency's 'sense of mission', eliminate red tape, and strengthen hierarchical authority within an agency to provide incentives for higher effort. Another possibility is to impact motivations through hiring practices. For instance, staffing an agency with a higher ratio of 'zealots' or career civil servants (rather than 'slackers' or political appointees) may improve the aggregate level of policy motivation associated with an agency (Gailmard and Patty, 2007).

Consider then a managerial strategy to increase agency policy motivations by taking steps to improve the sense of mission within the agency through hiring decisions (e.g., hiring relatively more 'zealots'), reduction of red tape, or strengthening of hierarchical authority within the organization. These all point to an intuitive conjecture: taking steps to increase the policy motivations of the agency will, all else equal, increase agency effort. It is not a stretch to go a step further and conjecture that increasing these motivations can *only* increase effort.

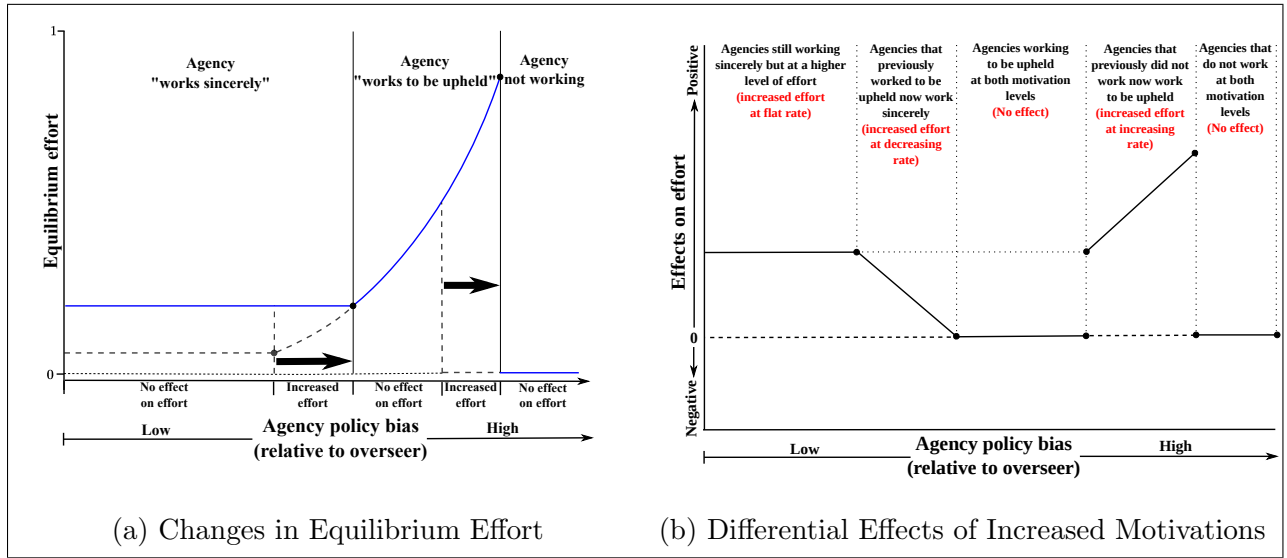


Figure 5.3: Effects of Increased Policy Motivations on Agency Effort Conditional on Agency Bias

However, as the following comparative static illustrates, when one takes into account the inter-institutional nature of bureaucratic policymaking and oversight the situation becomes more complicated. If these efforts by the principal are costly, it is not always the case that increased policy motivations produce efficient gains in effort investments. Figure 5.3 presents these effects graphically.

Figure 5.3a displays how an increase in agency policy motivations, holding all other parameters constant, affects the level of equilibrium effort as depicted in figure 5.2a. In the range of biases where agencies work sincerely and oversight has no effect there is indeed an upward shift in agency effort. This is because by increasing an agency's policy motivations the manager is able to motivate the agency to invest higher effort solely based on its own implicit motivations.⁶⁷ That is, by increasing the agency's sense of mission or strengthening hierarchical authority within the agency the manager has increased implicit incentives to work

⁶⁷Specifically, the agency is choosing effort investment $\hat{e}_A(\beta, \kappa) = \arg \max_e [-\beta V_e(e) - \kappa e]$. A simple inspection of this equation shows that increasing policy motivations, β , increases the agency's effort investments. This is equation 4.4 in Chapter 4.

hard. Notice also that this leads to an expansion of the range of agencies that work sincerely at this higher level of effort. This is because increasing the agency's policy motivations only alters the agency's effort calculus, it has no effect on the stringency of oversight. Therefore, a range of agencies that previously worked to be upheld at the lower level of policy motivations now work sincerely because they are implicitly motivated to do so, rendering oversight in that range of biases ineffective from a motivational perspective. For an intermediate range of biases oversight does impact effort and therefore agencies in that range will still work to be upheld and make the minimal effort investment required to obtain that outcome.⁶⁸ The agency is willing to invest more effort to be upheld, but because the stringency of oversight remains unchanged the agency need not invest any extra effort in this range. However, the range of agencies that will work to be upheld has also expanded. Agencies that previously, at the lower levels of motivation, found it incentive incompatible to invest the requisite amount of effort required by oversight now find it in their interest to make effort investments sufficient to be upheld. Thus, more biased agencies are now motivated to work hard than in the previous case of lower policy motivations.

Moreover, because these are agencies that previously did not work at all and are now working at relatively high levels to be upheld, this effort increases at an increasing rate as agencies become more biased relative to the overseer. This can be seen in figure 5.3b. Essentially, increasing policy motivations has provided incentives for these relatively highly biased agencies to invest higher levels of effort than they otherwise would *and* the fact that they are more biased amplifies this incentive as they are now more protective of their policy outputs. These predicted effects imply that initiatives to increase an agency's motivations should be

⁶⁸In this case, equation 4.7 from Chapter 4 is the relevant equation: $e_A^{\max}(t_A) = \frac{\beta(t_A^2 + V_F - V_e(e_A^{\max}(t_A))) + \pi}{\kappa}$. As policy motivations increase, β , so does the agency's willingness to invest more effort to be upheld. Therefore, the range of agencies that are willing to make effort investments sufficient to be upheld expands as well.

targeted at agencies that have low levels of bias or high levels of bias relative to an overseer. Targeting reforms for this purpose toward the range of intermediately-biased agencies that are unaffected may prove to be a waste of resources. However, improving the policy motivations to strengthen implicit effort incentives for lowly biased agencies, or incentives to work to be upheld for relatively high-bias agencies, should produce desirable outcomes.

Taken together, this suggests that positive correlations between policy motivations and effort are only predicted for agencies that fall within particular ranges of biases. One notable feature of figure 5.3b is that, contrary to the intuitive conjecture of effort strictly increasing in motivations, there are non-monotonic, discontinuous effects of policy motivations on effort incentives. Without taking into account the way in which oversight and biases interact, we could fail to identify positive effects on effort empirically. That is, in some ranges of potential agency biases there is no predicted effect, while in others we have positive effects predicted at different rates. Accounting for these differential effects is imperative to drawing valid empirical inferences regarding how an agency's policy motivations (e.g., public service motivation, sense of mission, etc.) impact observed effort.

5.4.2 Agency Effort and Reversal Aversion

Another characteristic of bureaucratic agencies that affects effort is reversal aversion. How strongly an agency is affected by having its policies overturned impacts how motivated an agency is to work to avoid that outcome. A political principal or manager may be able to impact this characteristic by increasing the severity of punishments associated with being reprimanded by an overseer. For instance, the ability of a principal to cut agency budgets or

resources by utilizing oversight as a signal can impact this characteristic. Similarly, this aversion could be increased for those working within a particular agency through reputational considerations. If workers within an organization must care more about their reputations, then a manager can leverage those reputational concerns to increase the level of agency aversion to having actions reversed. One possibility is to institute strong performance evaluation procedures within the organization. This could serve to amplify reputational concerns, thereby increasing aversion to having one's policy actions reversed. On the organizational level these reputational concerns are related to cultivating and sustaining bureaucratic autonomy (Carpenter, 2001). An agency with a poor reputation for having its actions sustained in the face of oversight may be granted a 'shorter leash' by important political principals. All of these possibilities contribute to how reversal aversion may impact agency effort incentives.

Figure 5.4 displays the effects of increasing agencies' reversal aversion on equilibrium effort. Note that effort only changes compared to the baseline (in figure 5.2a) for relatively highly biased agencies. When reversal aversion is increased a range of agencies that previously found it incentive incompatible to work now find it profitable to invest enough effort to be upheld by the overseer. All other ranges of agencies remain unaffected by this increase in aversion. Agencies that work sincerely continue to do so even with higher reversal aversion. This is because if oversight has no impact then aversion to being overturned through oversight is meaningless with respect to effort incentives. Similarly, increasing the aversion to being overturned for agencies that were already working to be upheld does increase the effort investment they would be *willing* to make to be upheld, but this increase has no effect on the stringency of oversight and therefore equilibrium effort remains unaffected. The overseer's minimum level of required effort to uphold the agency is independent of how averse the agency is to being overturned. Thus, for a range of intermediately biased agencies increasing reversal aversion has no tangible effect on effort.

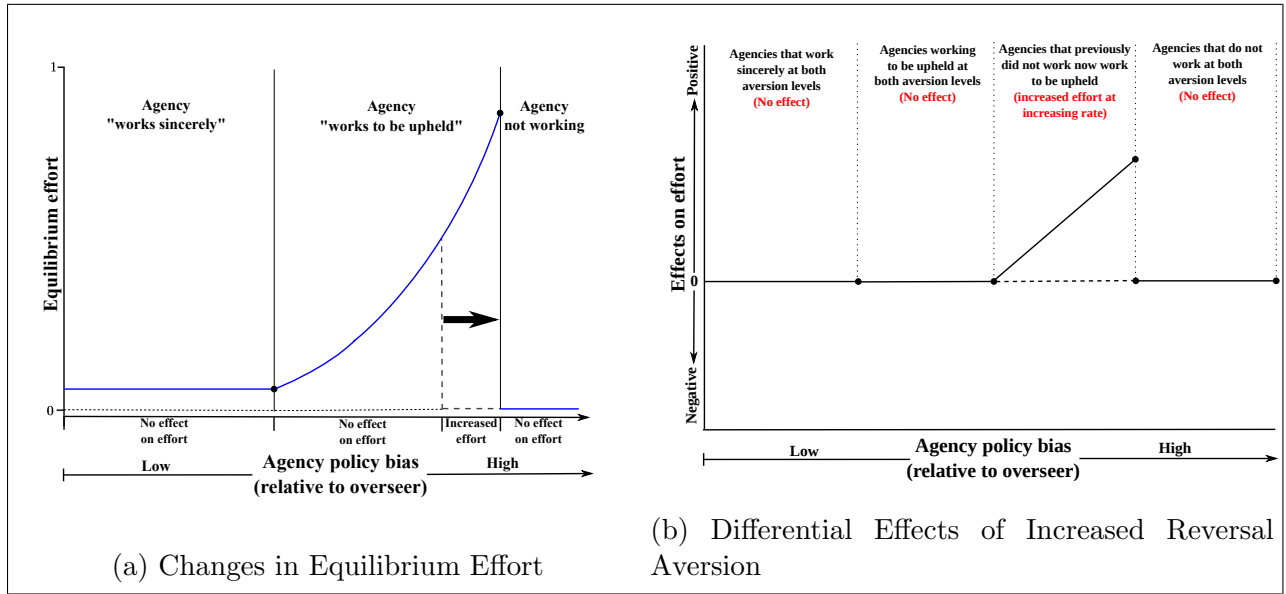


Figure 5.4: Effects of Increased Reversal Aversion on Agency Effort Conditional on Agency Bias

Figure 5.4b captures these effects graphically. We see only one region in which effort increases. Again, this is where agencies that previously did not work at all now work to be upheld. Moreover, as agencies become more biased in this range, the increase in aversion has stronger effects and effort increases at an increasing rate. The more biased an agency the more it has to lose if overturned. This incentive, coupled with the increased reversal aversion, offsets the costs that previously deterred an agency from working at all at lower levels of aversion. This suggests that managerial strategies that target increasing the severity of punishment associated with being reversed through oversight are best aimed at agencies that are on the high end of potential biases. This suggests that reforms, such as introduction of comprehensive performance evaluations, will be most effective in agencies that are characterized by relatively high biases.

5.4.3 Agency Effort and Effort Costs

Some types of effort are more costly than others. For instance, being tasked with characterizing the permissible amount of carbon emissions likely requires more than, say, sorting mail or addressing government assistance checks. Not only is it more technically demanding, it also likely required years of specialized training and education. On several dimensions, then, the relative costs of effort in one domain do not necessarily equate with those in another. Effort costs in the model can be thought of as a proxy for how technical a policy area is that an agency is asked to regulate or the amount of education, training, or experience required to perform the tasks of the agency. Relatively higher technical policy areas and those tasks that require higher levels of education or training can be thought of as requiring more costly effort.

While there is no way a manager could change the technical demands of a policy area or lower the education or training required to complete tasks, she could take steps to attempt to soften the impact of higher effort costs. Some examples include updating an agency's analytical capacity through technological innovation (e.g., the much-touted digital medical records 'reform'), devoting more resources to hiring technically savvy workers, or simply raising salaries so that relative costs of effort decrease. Figure 5.5 illustrates several points related to increased effort costs, which in turn will highlight the importance of attempting to reduce costs borne by agencies.

Figure 5.5a shows how increased effort costs impact effort incentives. Two things happen to the range of agencies working sincerely once effort costs increase. First, agencies that are not affected by oversight still work sincerely, but at a lower level of effort investment. The increase in effort costs lowered the agencies' effort investments based on their own

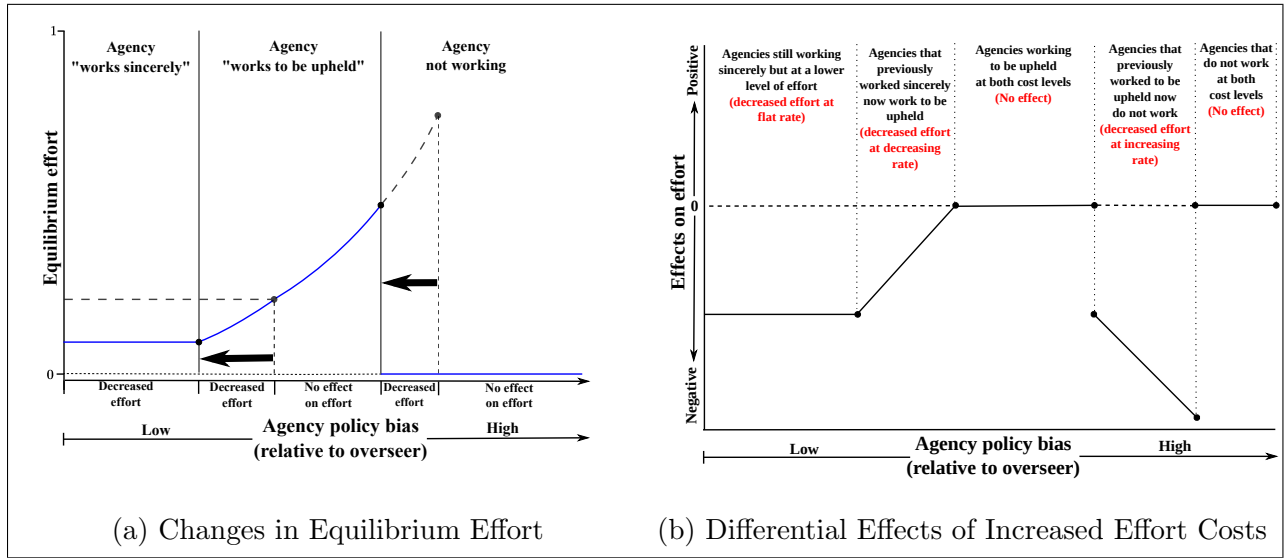


Figure 5.5: Effects of Increased Effort Costs on Agency Effort Conditional on Agency Bias

motivations.⁶⁹ Second, oversight begins to affect agencies at lower levels of biases when costs increase. A range of agencies that worked sincerely when effort costs were lower now work to be upheld. As agencies within this range become more biased the lost effort compared to the baseline decreases. This is depicted in figure 5.5b. For an intermediate range of agencies increased effort costs have no effect on effort. This is because the agencies within this intermediate range still work to be upheld and invest the minimal amount of effort required by oversight.⁷⁰ However, this range has contracted based on the increased costs. Now agencies that used to work to be upheld find it incentive incompatible to do so. In this range agencies do not work at all. This is an area where there is a relatively large drop-off in effort. Overall, there is a net loss in effort if costs are increased, but this is not true across the board. For an intermediate range of agencies and a range of highly biased agencies higher costs may have no effect.

⁶⁹That is, $\hat{e}_A(\beta, \kappa)$ is decreasing in κ .

⁷⁰The assumption here, of course, is that costs were not increased so much that incentive compatible effort is totally precluded.

The nature of the effects identified above point to several counter-intuitive implications. First, this suggests that reforms aimed at *reducing* costs should be targeted at relatively low- and high-bias agencies. This is because the interplay between oversight and bias in the intermediately-biased range of agencies (those that are unaffected by marginal increases in costs) is sufficient to maintain the baseline level of equilibrium effort. Agencies within this range are motivated enough by avoiding reversal based on their bias and other factors so that the increased costs are inconsequential. While the maximal level of effort investments the agencies are willing to make to be upheld has dropped, it has not dropped so much that working to be upheld is precluded. However, the opposite is true for the higher bias agencies that now do not work at all. Reducing effort costs for this range of agencies can have a profound impact on effort by dis-incentivizing that large drop-off in effort. Additionally, these differential effects suggest that high complexity (high effort cost) policymaking should be delegated to these intermediately biased agencies that are unaffected by the relatively higher costs of effort. Conversely, relatively remedial policymaking tasks should be delegated to low bias agencies so as not to deter sufficient effort investments through high costs.

5.5 Discussion

All of the results discussed in this paper contribute to general implications for normative issues of agency design and practical empirical considerations for studies of bureaucratic politics. This section briefly outlines the main points related to these issues.

Normative Implications. The results above suggest that biased agencies can be useful to political principals when both substantive choices and investment in effort are central

concerns. This implies that agency bias is generally “good” due to its instrumental value (see also Turner, 2015). This implication provides another argument that cuts against the ally principle (Bendor and Meirowitz, 2004). In contrast to previous studies that highlight the usefulness of biased agents to political principals (see Che and Kartik, 2009; Hirsch and Shotts, 2015, 2014; Van Weelden, 2013, for example), the implication in this paper only obtains in an environment with extensive ex post oversight. This highlights both the limitations and virtues of the inter-institutional nature of bureaucratic policymaking. A faithful agency may not always be the best agency.

Observation of this dynamic also suggests when and why principals, managers, and administrators should attempt to reform different aspects of bureaucratic agencies like their sense of mission, costs associated with effort, and punishment for being reprimanded by an overseer. The identification of effective reform opportunities depends crucially on the fundamental relationship between oversight and agency biases. When bias is fixed managers can only effectively motivate agency effort through augmenting these characteristics when the inter-institutional relationship between bureaucratic agency and overseer is conducive to doing so. That particular implication rests squarely on the highly conditional, non-monotonic relationships between agency characteristics and administrative effort and the nature of inter-institutional policymaking. These interdependent relationships also provide empirical implications for studies of inter-institutional policymaking generally, and bureaucratic policymaking in particular.

Empirical Implications. As noted above, the implications of the theory presented here may introduce complications for inferring bureaucratic non-compliance. Drawing inferences of non-compliance based on congruence of ideal points between a principal and an agency,

without first taking into account the institutional environment the agency is working within (e.g., identifying the overseer and its ideal point), can lead to faulty conclusions. At times, we ought to observe ideological divergence between principal and agent precisely because principals may have an incentive to design and sustain biased agencies for instrumental reasons. That is, without taking into account possible selection effects that are predicated on the highly interdependent, inter-institutional nature of bureaucratic policymaking, we may at times erroneously conclude an agency is not complying when in fact they are performing exactly as the principal envisioned given constraints.

Similarly, when studying the actual effects of agency characteristics such as policy motivations, reversal aversion, and effort costs on bureaucratic effort the non-monotonicities and discontinuities predicted here need to be taken into account. For instance, a study looking at how varying levels of policy motivations across agencies affect agency effort may intuitively hypothesize that there is a (largely) linear relationship between higher levels of policy motivations and higher levels of effort. However, the comparative statics explored in this chapter suggest that this may not be true for all agencies. Without specifying a statistical test with this possibility in mind, results regarding the overall effect of policy motivations on agency effort may actually underestimate the strength of that relationship. Similar arguments apply to the cases of effort costs and reversal aversion. Overall, classic features of agency design and bureaucratic policymaking are non-monotonic and highly conditional on each and the inter-institutional nature of policymaking. Empirical investigations of these relationships need keep these theoretically-driven implications in mind.

Data. Testing these relationships is possible only with adequate data and proper measurement. Luckily, there are data that could help to flesh out these relationships empirically.

For instance, the Office of Personnel Management (OPM) in the US Federal government has conducted bi-annual or annual surveys of federal employees since 2002.⁷¹ In the survey indexes are constructed that measure levels of effort, implicit motivations, managerial styles, and other factors across a plethora of agencies. Additionally the Government Accountability Office (GAO) has conducted surveys that identify what agencies use performance evaluation protocols. It also identifies whether, and to what extent, agencies utilize the results to guide decision-making. In terms of estimation of agency and overseer ideal points, scholars have suggested several ways to go about doing so (e.g., expert surveys (Lewis, et. al.)). One of the major methodological issues in this context is being able to estimate agency and overseer ideology within the same spatial setting. This is somewhat less of a problem when the overseer is also in the executive branch (e.g., the OIRA) but becomes more problematic as we look at inter-branch relationships (e.g., agencies and courts). However, designing a bridging technique, while problematic in its own right, could provide an avenue for placing ideal point estimates in the same spatial context. Overall, data such as these can be used to begin to investigate the empirical implications discussed in this paper.

5.6 Conclusion

This chapter set out to provide insight into how agencies may be motivated to invest in higher effort when making policy when appointing new agency heads (or the like) to guide agency direction is not possible. By utilizing comparative statics from the agency-overseer sub-game in the previous chapter, I have shown that intuitive managerial strategies to motivate effort may not be so intuitive. For instance, increasing policy motivations by attempting to increase an agency's sense of mission or public service motivations will increase effort, but only

⁷¹This is called the Federal Employee Viewpoint Survey (FEVS).

for a range of intermediately biased agencies (relative to the overseer). Similarly, increasing reversal aversion and reducing costs of effort investment may be ineffective means for motivating higher effort conditional on the other characteristics of the agency and the policy environment. Overall, the results discussed in this chapter highlight the highly conditional nature of these possible avenues for agency motivation. The deeply contingent relationship between oversight, agency bias, characteristics of agency design, and the policy environment creates limitations to the overall effectiveness of important avenues for effort motivation. The implications discussed above suggest that scholars and practitioners alike ought to be aware of these complexities when attempting to draw inferences or institute reforms aimed at improving the effort incentives for policymaking agencies facing ex post oversight.

Chapter 6

Conclusion

Bureaucratic policymaking has become a dominant focal point in American government. From environmental regulations to workplace safety standards to regulating the size of holes in Swiss cheese (Skrzycki, 2003), government agencies have an impact on all policy areas. Once the administrative process concludes and an agency issues a regulation, that policy carries the full force of law. Two main observations about this process serve as the foundation for this dissertation project. First, oversight is ubiquitous. Citizens and affected groups can challenge policy actions (and, increasingly, inaction) in courts, the OIRA reviews most policy proposals prior to their implementation, inspectors general monitor government program implementations, and interested political principals (e.g., congressional committees) watch for signs of agency subversion or negligence. Oversight institutions serve as a tool for principals wishing to keep unelected bureaucratic policymakers in line.

Second, the bureaucracy does more than craft the substance of policy. The same agencies that develop policy content subsequently enforce it once the process concludes and regulatory proposals become law. While much ink has (rightfully) been spilled over how political

principals may use oversight to control a politically insulated bureaucracy,⁷² much less work has focused on how oversight affects agency effort aimed at improving enforcement.⁷³ This dissertation project combines these two observations into a simple, flexible theoretical framework to study how oversight impacts agency effort incentives.

Chapter 2 develops a baseline model for studying the interaction between policymaking agencies and oversight institutions like judicial review. It purposefully limits the focus to faithful agencies (i.e., those that share the overseer's ideal point) to show that once effort investments are introduced, the potential deleterious effects of oversight (i.e., the 'bail-out effect') exist whether or not there is ideological disagreement. When the overseer engages in procedural review of the agency's effort investments oversight can either strengthen or weaken effort incentives. Which effect obtains is dependent on the structure of the policy environment and characteristics of the agency. Chapter 3 extends this framework to environments in which the overseer can review substantive policy choices as well. The chapter shows that there are profoundly different incentive effects conditional on the type of review the overseer is engaged in. Specifically, when an overseer moves from procedural (effort) to substantive (content) review there is no possibility of fully sincere agency policy choices. For certain environments, the agency will choose to obfuscate with its policy choices to exaggerate the necessity of its policymaking activities. Taken together these two chapters highlight the importance and limitations associated with the oversight of agency policymaking.

In Chapter 4, I develop a theory of agency design in which a political principal can choose the bias of the agency it will empower to develop and implement policy. The optimal level of agency bias depends critically on the oversight system in place. In most realistic

⁷²For instance, Bawn (1995); Calvert, McCubbins and Weingast (1989); Huber and Shipan (2002); McCubbins and Schwartz (1984); McCubbins, Noll and Weingast (1987, 1989), to name a few.

⁷³But see Bueno de Mesquita and Stephenson (2007); Canes-Wrone (2003, 2006).

cases, the principal benefits by creating (or delegating to) an agency that is located on the opposite side of her ideal point from the overseer. The principal is able to leverage the dynamics of oversight to induce the agency to invest higher levels of effort toward effective implementation. She loses less on the substance of policy than if she were to oversee agency actions herself. Overall, this chapter provides a theoretical foundation for understanding the creation and sustainment of biased agencies. More generally, this chapter shows how the dynamics of overseer-agency interactions structure principal incentives for the institutional design of policymaking agencies.

Finally, Chapter 5 utilizes results from the agency-overseer interactions in Chapter 4 to explore managerial motivational strategies when agency bias cannot be altered. It provides counter-intuitive predictions for when and how these motivational strategies will be more or less effective. Strengthening agency policy motivations through staffing the agency with zealots (Gailmard and Patty, 2007), reducing red tape (Moynihan and Pandey, 2007), or altering the culture of the agency to reflect stronger commitment to mission (Wilson, 1989; Wright, 2007) does indeed, on balance, strengthen effort incentives. However, for a range of intermediately biased agencies, reforms such as these will have little to no effect due to the limited power of oversight as a motivational mechanism. Moreover, even when increasing policy motivations does increase effort, it does so at differing rates dependent on the underlying agency-overseer relationship. Put simply, the effectiveness of reform strategies to motivate bureaucrats is constrained by the effectiveness of oversight at providing similar incentives.⁷⁴

Taken together, the results in this dissertation project provide an in-depth picture of how oversight can affect agency effort incentives, with and without the possibility of agency

⁷⁴Similar results are shown for reforms aimed at lowering effort costs and increasing agencies' aversion to being overturned by an overseer.

subversion. There are political agency pathologies that highlight the highly interdependent nature of policymaking in light of the system writ large.

6.1 Implications

I draw several implications from this project—normative, empirical, and practical. Normatively, the theories developed in this dissertation suggest that an ally agency is generally not the optimal choice when modeling content and enforcement in the same framework. A political principal can benefit from an adversarial, politicized system in which a biased agency is allocated policymaking authority while being subjected to oversight from an oppositely biased review institution. This implies that when designing policymaking institutions it is important to take into account the political nature of the oversight mechanisms (that will also be) in place. Similarly, this implication provides a theoretical foundation for understanding why we ought to observe principals (e.g., Congress, the President) delegating policymaking authority to what appear to be agencies that do not share her ideological inclinations.

The upshot to this is that it sheds light on a potentially troubling normative debate regarding whether and how bureaucracy fits into representative democracy. If we take elected political principals to represent the interests of the citizenry, then this project implies that there are both benefits and severe limitations with respect to agency responsiveness as affected through oversight. While it is unlikely that we can always achieve a fully faithful agency incentivized to work hard, oversight can be leveraged to maximize one dimension with relatively small losses on the other. While I do not claim to have solved the conundrum surrounding how to synthesize bureaucracy and representative democracy, this dissertation does provide insight into how one important aspect of bureaucratic policymaking responds to a common control

mechanism (oversight). This allows us a benchmark from which to evaluate the performance of bureaucracy conditional on what values we, as a society, may wish to emphasize. At times, we may be willing to sacrifice content of policy to improve enforcement while at other times we may wish to bring content more into line with the understanding that incentives may be harmed. Overall, this study highlights the importance of recognizing that bureaucratic agencies face multi-task problems and the role that oversight plays in policymaking incentives when making judgements about institutional design options.

Practically, this dissertation also provides implications for effort incentives from a managerial perspective. When structural institutional design or reform is not a viable option, managers (or principals) may attempt to impact bureaucratic incentives by attempting to alter characteristics of agencies and their responses to policy environments. For instance, fostering a culture of commitment to mission within an agency or eliminating red tape (Moynihan and Pandey, 2007; Wilson, 1989; Wright, 2007), lowering effort costs through technology investment or the like, and increasing agencies' aversions to being reversed by overseers can all strengthen the incentives to work hard. However, when the shadow of review is properly taken into account, the effectiveness of these motivational strategies is shown to be highly dependent on the bias or direction of the agency. So while, for instance, strengthening an agency's sense of mission may indeed strengthen incentives, this depends on where the agency's mission falls on the ideological (substantive) spectrum relative to its overseer(s). Thus, when regulatory reforms are proposed it is vital to explicitly account for how particular agencies fit into the overarching policymaking system if we are to make accurate assessments about their potential efficacy.

6.2 Avenues for Future Research

In closing, this research introduces a number of interesting directions for future research. First, in this project I focused on how oversight can affect the incentives for agencies to invest effort toward effective policy enforcement. In all of the models the agency learned the state of the world perfectly. Substantively, this implies that agencies have perfect analytic capacity. Agencies can fully understand how substantive policy content should be developed conditional on the contingencies of the policy environment. This assumption was made to isolate the effects of oversight on a second dimension, programmatic capacity: effort investments aimed at improving policy implementation or enforcement, whatever the content. Obviously, this is not true in practice and relative capacity advantages vary across agencies. Some agencies are very strong with respect to analytic capacity while others have developed stronger programmatic capacity. Additionally, some agencies need relatively more expertise on one dimension versus the other and, perhaps most interestingly, some require development of capacity on both dimensions.⁷⁵

For instance, the EPA and the OSHA require both high levels of analytic capacity to conduct research into correct standards while simultaneously being required to amass high levels of programmatic capacity to enforce policy effectively once standards are developed. This raises a fundamental tension in budget-restricted organizations: how should an agency director (or principal) optimally allocate resources across the development of analytic and programmatic capacities? The answer to this question will depend inextricably on the nature of the policy environment the agency is asked to regulate, the existing strengths of the agency, and the impact of ex post oversight on ex ante agency investment incentives. It is very likely, based on

⁷⁵Again, I am borrowing language from Carpenter (2001). Analytic capacity is an agency's ability to effectively craft the substance of policy while programmatic capacity refers to an agency's ability to effectively implement or enforce policy once promulgated.

the theories in this dissertation, that oversight will introduce perverse incentives that lead to inefficient allocations of capacity-developing resources. Given that ineffectiveness and inefficiency can arise based on lacking capacity on either dimension, this is a promising, and important, research question that can be examined using the general framework developed in this project.⁷⁶

Second, I treated the agency as a unitary actor throughout this project. This is obviously a gross simplification from the actual processes that lead to policy within an agency.⁷⁷ While this approach did allow for greater clarity in examining the impact of oversight on the policymaking incentives of bureaucracy generally, future work could explore what the theories developed in this dissertation say for intra-agency organization. One particularly interesting possibility is the exploration of how dividing tasks among agency sub-units impacts policy outcomes. This is also realistic: the OSHA, for instance, have workers whose job it is to analyze the technical details for policy content and their impact while other workers are employed as inspectors that actually go out to workplaces and enforce policies. Splitting tasks may allow for greater specialization but it also increases the possibility for political agency problems by introducing multiple agents working on correlated tasks independently to produce outcomes. The quality of one set of workers relative to the other could greatly impact the overall effectiveness of agency-made policy in practice.

Similarly, agencies often consist of many groups with different policymaking tasks. For instance, agencies often have economists on staff to investigate economic impacts, lawyers on staff to examine legal implications and ensure statutory and constitutional compliance, and a slew of policy experts that attempt to craft the content of policy in light of the other workers'

⁷⁶To be clear, this would not be the first project to study agency capacity development. This is a growing literature and recent work within it includes Carpenter (2001); Huber and McCarty (2004); Ting (2011).

⁷⁷See Feldman (1989) for a very interesting case study on policy development within an agency.

output. In this way, one can think of agency-made policy as a complex amalgamation of aggregated information on multiple dimensions as well as enforcement. The possibility for errors increases quickly as the process becomes more complex, thereby further enhancing the role of oversight (both good and bad) in the larger policymaking system.

Finally, the models I develop are one-shot games of policymaking. In reality, one important class of oversight decisions—especially in judicial and executive (OIRA) oversight—involves an overseer *remanding* (rather than reversing outright) agency actions. Courts often rule against agencies with instructions directing them on how to become legally compliant—whether based on content or procedure. Similarly, the OIRA often sends proposed rules back to the agency with guidance on requested revisions. In both cases agencies can then react to initial oversight decisions; altering the content or enforcement of policy to become compliant with court orders, or revising proposed rules in response to OIRA guidance. The general framework developed in this dissertation could be extended to a repeated game that incorporates oversight decisions that allow for agency resubmission.⁷⁸ In short, this dissertation provides insight into how oversight affects agency policymaking incentives that can be utilized to explore more nuanced aspects of the process.

Ultimately, while this study is not the first, and will surely not be the last, to explore these issues, it has provided novel insights into how oversight institutions structure bureaucratic policymaking incentives when bias and slack are both potential problems. This project identified deeply rooted pathologies within the policymaking system. Moving forward, scholars and practitioners alike should take into account the highly conditional, interdependent nature of interactions between political principals, bureaucratic agencies, and oversight institutions when assessing whether and how we can improve the responsiveness of public policy to public

⁷⁸This could also potentially be modeled as a contracting problem with renegotiation.

needs. In conjunction with the suggestions for future research above, this project can be used as a foundation for building a fuller picture of the American policymaking generally, and the multifaceted role of oversight in particular.

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Appendix A

Appendix to Chapter 2

Recall the assumption $t_A = t_C = 0$ employed throughout the analysis above. In line with this assumption all the proofs that follow treat utility for the agency and the court as follows.

Agency utility:

$$\begin{aligned}u_A(e, y, r) &= -\beta(y - t_A)^2 - \kappa e - \pi r, \\ &= -\beta y^2 - \kappa e - \pi r.\end{aligned}$$

Court utility:

$$\begin{aligned}u_C(e, y, r) &= -(y - t_C)^2, \\ &= -y^2.\end{aligned}$$

Lemma 1.

$$s_C^*(e) = \begin{cases} r = 0 & \text{if } V_\varepsilon(e) \leq V_\omega, \\ r = 1 & \text{if } V_\varepsilon(e) > V_\omega. \end{cases}$$

Proof. This follows from the fact that F_ω and G_e have the same expectation and C is risk averse. ■

Lemma 2. $s_A^{x*}(\omega) = \omega$.

Proof. To prove that the Agency, in weakly undominated strategies, will always choose $x = \omega$ in equilibrium we need only show that A does not benefit from deviating from this choice (1) when C remands, $r = 1$, and (2) when C upholds, $r = 0$. I deal with both of these possibilities in turn.

(1) First, assume C will strike down A 's policy choice according to Lemma 1. Let $s_A^{x*}(\omega) = \omega$ and let $\delta \geq 0$ denote the deviation by A . Thus, if A deviates policy is $\omega + \delta$. A 's expected payoff for this deviation is then:

$$\begin{aligned}\Delta U_A(\delta) &= -\beta V_\omega + \beta V_\omega + \kappa e - \kappa e \\ &= 0.\end{aligned}$$

Thus, A gains nothing from deviating by δ . □

(2) Assume C will uphold A 's policy choice according to Lemma 1. Again, let $s_A^{x*}(\omega) = \omega$ and let $\delta \geq 0$ denote the deviation. A 's expected payoff for this deviation is then:

$$\begin{aligned}\Delta U_A(\delta) &= -\beta\delta^2 + \beta V_\varepsilon(e) - \beta V_\varepsilon(e) + \kappa e - \kappa e \\ &= -\beta\delta^2\end{aligned}$$

Thus, if $\delta = 0$ (or $\beta = 0$) A 's expected payoff is 0, which is at best equal to what A would receive in expectation given sticking to $s_A^{x*}(\omega) = \omega$. If $\delta > 0$, then A 's disutility is increasing

and A is therefore strictly worse off. \square

Having shown that A does not benefit by a deviation in any situation, the result follows. \blacksquare

Proposition 1. I prove Proposition 1 by proving each part — (a), (b), and (c) — in order.

Proof. Part (a). Given $s_C^*(e)$, $s_A^{e*} = 0$.

Recall that the ordering of the variances for part (a) is $V_\omega < V_\varepsilon(1) < V_\varepsilon(0)$. Holding C 's equilibrium strategy constant, $s_C^*(e)$, we know that C will always choose $r = 1$. First, recall that anytime $s_C^* = 1$, $y = -\omega$ and therefore $E[y] = -V_\omega$. Thus, we can look at the net payoff that A receives for acquiring implementation expertise. The expected payoff for not acquiring expertise is given by:

$$U_A(e = 0) = -\beta V_\omega - \pi,$$

and the expected payoff for acquiring expertise is:

$$U_A(e = 1) = -\beta V_\omega - \kappa - \pi.$$

Combining these, the net payoff to A is:

$$\begin{aligned} \Delta U_A(e) &= -\beta V_\omega + \beta V_\omega - \kappa - \pi + \pi \\ &= -\kappa. \end{aligned}$$

A always pays a net cost of κ if $s_A^e = 1$. This could be avoided by A choosing $e = 0$. Thus, when $s_C^* = 1$, $s_A^{e*} = 0$. \square

Part (b). Given $s_C^*(e)$, $s_A^e = 1$ if and only if $-\beta(V_\varepsilon(1) - V_\varepsilon(0)) \geq \kappa$.

Recall that the ordering of variances for part (b) is $V_\varepsilon(1) < V_\varepsilon(0) < V_\omega$. Holding $s_C^*(e)$

constant, we know that C will always choose $r = 0$. First, recall anytime $s_C^* = 0$, y is the final policy outcome so $E[y] = -V_\varepsilon(e)$ given s_A^{x*} . A 's expected payoff for $e = 0$ is given by

$$U_A(e = 0) = -\beta V_\varepsilon(0)$$

and A 's expected payoff for $e = 1$ is

$$U_A(e = 1) = -\beta V_\varepsilon(1) - \kappa.$$

Combining, and rearranging, we have the condition for A to choose $e = 1$, given by

$$\begin{aligned} -\beta V_\varepsilon(1) - \kappa &\geq -\beta V_\varepsilon(0) \\ = -\beta V_\varepsilon(1) + \beta V_\varepsilon(0) &\geq \kappa \\ = -\beta(V_\varepsilon(1) - V_\varepsilon(0)) &\geq \kappa. \end{aligned}$$

So, $s_A^{e*} = 1$ if the condition holds. Notice that π is not in A 's calculation. This gives the result, A will acquire implementation expertise only if it would independent of C 's choice. In other words, because π is not part of the condition, A pays κ only if A 's benefits from the increased policy precision justifies that choice *independent of the specter of being reviewed by C* . \square

Part (c). Given $s_C^*(e)$, $s_A^e = 1$ if and only if $-\beta(V_\varepsilon(1) - V_\omega) + \pi \geq \kappa$.

Recall that the ordering of variances for part (c) is $V_\varepsilon(1) < V_\omega < V_\varepsilon(0)$. Holding $s_C^*(e)$ constant, we know that C will choose $r = 1$ if and only if $s_A^e = 1$ and will choose $r = 0$ otherwise. Thus, A 's investment in e is dispositive with respect to deference. First, recall that anytime $s_C^*(e) = 1$ final policy is $y = -\omega$ so $E[y] = -V_\omega$. This gives A 's expected payoff

when $e = 0$ (which is the only case, given s_C^* that $r = 1$) as:

$$U_A(e = 0) = -\beta V_\omega - \pi.$$

A avoids κ but must pay π because C chooses $r = 1$. Similarly, we can easily take A 's expected payoff when $e = 1$ (which is the only case, given s_C^* , that $r = 0$) as:

$$U_A(e = 1) = -\beta V_\varepsilon(1) - \kappa.$$

Combining, and rearranging, we have the condition for A to choose $e = 1$, given by

$$\begin{aligned} -\beta V_\varepsilon(1) - \kappa &\geq -\beta V_\omega - \pi \\ &= -\beta V_\varepsilon(1) + \beta V_\omega + \pi \geq \kappa \\ &= -\beta(V_\varepsilon(1) - \beta V_\omega) + \pi \geq \kappa. \end{aligned}$$

So, $s_A^{e*} = 1$ if the condition above holds. Notice that in contrast to part (b), the presence of C is integral in that calculation (through π). The result follows naturally. \square

Combining all of these constituent pieces, the overall result presented in Proposition 1 follows.

■

Proposition 2. At the heart of Proposition 2 are the conditions for the agency to invest high effort when there is a reviewing court and when there is not. I first derive these conditions then show how different combinations of these conditions lead to the result.

Proof. The conditions:

(1) High effort with a Court: The agency's utility from investing high effort, which from

Lemma 1 means its policy action will be upheld is given by,

$$U_A(e = 1|r = 0) = -\beta V_\varepsilon(1) - \kappa$$

The agency's utility from investing low effort, which means the court will reverse its policy action is given by,

$$U_A(e = 0|r = 1) = -\beta V_\omega - \pi$$

Combining and rearranging gives us the condition for the agency to invest high effort, *i.e.*, choose $e = 1$, when it will face judicial review by a court:

$$U_A(e = 1|Court) = -\beta(V_\varepsilon(1) - V_\omega) + \pi \geq \kappa. \quad (A.1)$$

Thus, the agency will invest high effort—choose $e = 1$ —if Equation A.1 holds and choose $e = 0$ if

$$U_A(e = 0|Court) = -\beta(V_\varepsilon(1) - V_\omega) + \pi < \kappa. \quad (A.2)$$

(2) High effort without a Court: The agency's utility from investing high effort when there is no court that will review the agency's action, and therefore the agency will never be reversed, is given by,

$$U_A(e = 1|r = 0) = -\beta V_\varepsilon(1) - \kappa.$$

The agency's utility from investing low effort without a court present is given by,

$$U_A(e = 0|r = 0) = -\beta V_\varepsilon(0)$$

Combining and rearranging gives us the condition for the agency to choose $e = 1$ when there is no court:

$$U_A(e = 1|No\ Court) = -\beta(V_\varepsilon(1) - V_\varepsilon(0)) \geq \kappa. \quad (\text{A.3})$$

Similarly, the condition for the agency to invest low effort, $e = 0$, when there is no court is given by,

$$U_A(e = 0|No\ Court) = -\beta(V_\varepsilon(1) - V_\varepsilon(0)) < \kappa. \quad (\text{A.4})$$

Thus, when there is no threat of judicial review the agency will invest high effort—choose $e = 1$ —when Equation A.3 holds and invest low effort—choose $e = 0$ —when Equation A.4 holds. The different combinations of high/low effort with a court and high/low effort without a court yield the results in Proposition 2.

Judicial review has no impact on agency effort. If Equations A.1 and A.3 both hold then the agency will always invest high effort regardless of the presence of review since effort costs are so low. Conversely, if Equations A.2 and A.4 both hold then the agency will never invest high effort whether there is a reviewing court or not due to prohibitively high effort costs. Thus, judicial review has no impact on agency effort when costs are too low or too high.

Judicial review does impact agency effort. Assume that costs are intermediate. Then either,

$$-\beta(V_\varepsilon(1) - V_\omega) + \pi < \kappa < -\beta(V_\varepsilon(1) - V_\varepsilon(0)), \quad (\text{A.5})$$

or

$$-\beta(V_\varepsilon(1) - V_\varepsilon(0)) < \kappa < -\beta(V_\varepsilon(1) - V_\omega) + \pi. \quad (\text{A.6})$$

If the ordering is as in Equation A.5 then judicial review harms effort incentives since Equations A.2 and A.3 both hold. The introduction of a reviewing court induces low effort when the agency would have invested high effort absent a court. If the ordering is as in Equation A.6 then judicial review strengthens effort incentives since Equations A.1 and A.4 both hold. Introduction of a reviewing court induces high effort when the agency would have invested low effort absent a court. Since we are assuming that effort costs are intermediate the comparison is simply between $-\beta(V_\varepsilon(1) - V_\omega) + \pi$ and $-\beta(V_\varepsilon(1) - V_\varepsilon(0))$. Namely if,

$$-\beta(V_\varepsilon(1) - V_\varepsilon(0)) < -\beta(V_\varepsilon(1) - V_\omega) + \pi,$$

the introduction of judicial review induces high effort when the agency would have invested low effort absent the court. Rearranging yields,

$$\beta(V_\varepsilon(0) - V_\omega) < \pi.$$

Thus, agency effort incentives are strengthened if $\beta(V_\varepsilon(0) - V_\omega) < \pi$ and weakened otherwise as stated in Proposition 2. ■

Appendix B

Appendix to Chapter 3

Procedural Review Proofs

First, I prove the following lemmas that compose the result embodied in Proposition 3.

Lemma 4. *Under the procedural review model, the agency always sets policy sincerely:*

$$s_A^{x*}(\omega) = \omega + t_A.$$

Proof. To show that the agency always sets policy at its ideal point I show that it is always better off by checking deviations in two cases: (1) when the court upholds the agency and (2) when the court reverses the agency. In both cases let $\delta > 0$ denote the agency's deviation so that if the agency deviates $x = \omega + t_A + \delta$.

Case 1: Court upholds. The agency's expected utility from setting policy sincerely, $x = \omega + t_A$, is given by,

$$U_A(x = \omega + t_A | r = 0) = -\beta V_\varepsilon(e) - \kappa e.$$

The agency's expected utility from deviating and setting policy to $x = \omega + t_A + \delta$ is given by,

$$U_A(x = \omega + t_A + \delta | r = 0) = -\beta(\delta^2 + V_\varepsilon(e)) - \kappa e.$$

These combine to give the agency's net expected payoff from deviating from sincere policymaking:

$$\begin{aligned}\Delta U_A(x = \omega + t_A + \delta | r = 0) &= -\beta(\delta^2 + V_\varepsilon(e)) - \kappa e + \beta V_\varepsilon(e) + \kappa e, \\ &= -\beta\delta^2.\end{aligned}$$

If $\beta = 0$ then the agency is no better off from deviating and if $\beta > 0$ the agency is strictly worse off from deviating. Thus, when the court upholds the agency, the agency, in weakly undominated strategies, does not deviate and chooses policy at its ideal point.

Case 2: Court reverses. The agency's expected utility from making policy sincerely given the court reverses is given by,

$$U_A(x = \omega + t_A | r = 1) = -\beta(t_A^2 + V_F) - \pi.$$

The agency's expected utility from deviating by δ is given by,

$$U_A(x = \omega + t_A + \delta | r = 1) = -\beta(t_A^2 + V_F) - \pi.$$

The net expected payoff for deviating then, since the agency receives the same payoff from court reversal regardless, is zero. Having shown that the agency gains nothing from deviating from the posited equilibrium strategy of sincere policymaking in both cases the result follows. ■

Lemma 5. *The agency never invests high effort when facing a perfectly skeptical court.*

Proof. When the court is perfectly skeptical it always overturns the agency. Thus, the agency's expected payoff from investing low effort, $e = 0$, given that it will be overturned is

given by,

$$U_A(e = 0|r = 1) = -\beta(t_A^2 + V_F) - \pi.$$

The agency's expected payoff from investing high effort, $e = 1$, given it will be overturned is similarly given by,

$$U_A(e = 1|r = 1) = -\beta(t_A^2 + V_F) - \kappa - \pi.$$

Combining these gives the agency's net expected payoff for investing high effort given it will be overturned,

$$\begin{aligned}\Delta U_A(e = 1|r = 1) &= -\beta(t_A^2 + V_F) - \kappa - \pi + \beta(t_A^2 + V_F) + \pi, \\ &= -\kappa.\end{aligned}$$

Thus, if the agency invests high effort when facing a perfectly skeptical court it is strictly worse off since it must bear the additional effort cost. Therefore, the agency never invests high effort when facing a perfectly skeptical court. ■

Lemma 6. *The agency invests high effort when facing a perfectly deferential court only if it would have absent any judicial review.*

Proof. A perfectly deferential court always upholds the agency. Thus, the agency's expected payoff for investing low effort, $e = 0$, given it will be upheld is given by,

$$U_A(e = 0|r = 0) = -\beta V_\varepsilon(0).$$

The agency's expected payoff for investing high effort, $e = 1$, given it will be upheld is given by,

$$U_A(e = 1|r = 0) = -\beta V_\varepsilon(1) - \kappa.$$

Combining these expected payoffs yields the agency's net expected payoff for investing high effort given it will be upheld,

$$\begin{aligned}\Delta U_A(e = 1|r = 0) &= -\beta V_\varepsilon(1) - \kappa - \beta V_\varepsilon(0), \\ &= \beta(V_\varepsilon(0) - V_\varepsilon(1)) - \kappa.\end{aligned}$$

Rearranging this net expected payoff yields the agency's incentive compatibility constraint for investing high effort given it will always be upheld,

$$\beta(V_\varepsilon(0) - V_\varepsilon(1)) \geq \kappa.$$

If the increased policy precision from investing high (relative to low) effort outweighs the cost of that effort then the agency invests high effort when facing a perfectly deferential court. Given that there is no π in the agency's incentive compatibility constraint for investing high effort, the court has no impact on this choice. Therefore, when the reviewing court is perfectly deferential the agency invests high effort only if it would have absent any judicial review, *i.e.*, review has no impact on agency effort choice. ■

Lemma 7. *The agency invests high effort when facing a conditional-deference court if and only if the policy benefits from doing so outweigh the marginal effort costs relative to benefits of not being overturned, i.e., $e = 1 \iff \beta(t_A^2 + V_F - V_\varepsilon(1)) \geq \kappa - \pi$.*

Proof. The court will uphold the agency if and only if the agency invests high effort. Then, the agency's expected payoff from investing low effort, $e = 0$, given that it will be overturned is given by,

$$U_A(e = 0|r = 1) = -\beta(t_A^2 + V_F) - \pi.$$

The agency's expected payoff from investing high effort, $e = 1$, given that it will lead to its being upheld is given by,

$$U_A(e = 1|r = 0) = -\beta V_\varepsilon(1) - \kappa.$$

Combining these yields the agency's net expected payoff for investing high effort given it will be upheld following this choice,

$$\begin{aligned}\Delta U_A(e = 1|r = 0) &= -\beta V_\varepsilon(1) - \kappa + \beta(t_A^2 + V_F) + \pi, \\ &= \beta(t_A^2 + V_F - V_\varepsilon(1)) - \kappa + \pi.\end{aligned}$$

Rearranging this net expected payoff yields the agency's incentive compatibility constraint for investing high effort when facing a conditional-deference court,

$$\beta(t_A^2 + V_F - V_\varepsilon(1)) \geq \kappa - \pi,$$

as stated in the Lemma. ■

Proposition 3 *When judicial review considers only the agency's effort choices the agency:*

1. *Always sets policy sincerely (at its ideal point): $s_A^{x*}(\omega) = \omega + t_A$,*
2. *never invests high effort if it will be reversed for sure,*
3. *invests high effort only if it would have absent judicial review given its own implicit motivations when facing a perfectly deferential court (i.e., $\beta(V_F - V_\varepsilon(1) + t_A^2) \geq \kappa$),*
and

4. *invests high effort if the policy improvements generated from investing high effort and the policy rents extracted through biasing policy choices exceeds the marginal cost of investing high effort given the agency's aversion to being reversed when facing a conditional-deference court (i.e., $\beta(V_F - V_\epsilon(1) + t_A^2) \geq \kappa - \pi$).*

Proof. The proposition follows from a straightforward combination of Lemmas 4, 5, 6, and 7. ■

Proposition 4 *When the court is engaged in procedural review, the agency's effort choices are affected as follows:*

1. *If $\Delta U_A(e = 1|\text{procedural review}) \geq 0$ and $U_A(e = 1|\text{no procedural review}) < 0$ the presence of procedural judicial review induces the agency to invest high effort when it would have invested low effort absent that review, and,*
2. *if $\Delta U_A(e = 1|\text{procedural review}) < 0$ and $U_A(e = 1|\text{no procedural review}) \geq 0$ the presence of procedural judicial review induces the agency to invest low effort even though it would have invested high effort absent procedural review.*

Proof. Follows directly from combining in-text calculations of $\Delta U_A(e = 1|\text{procedural review})$ and $U_A(e = 1|\text{no procedural review})$. ■

Substantive Review Proofs

Lemma 8. *The court's optimal judicial review strategy in the substantive review model, assuming a sincere agency policy strategy, is given by the following best response function,*

$$s_C^*(x, e) = \begin{cases} \text{uphold } (r = 0) & \text{if } \sqrt{V_\varepsilon(e)} \leq \omega, \\ \text{overturn } (r = 1) & \text{otherwise.} \end{cases}$$

Proof. Assume that the agency sets policy sincerely, *i.e.*, the agency chooses policy at its ideal point. Further, assume that $t_A = 0$ so that the court and the agency have the same ideal point. Then the court's subjective expected payoff for upholding the agency is given by,

$$U_C(r = 0; \rho_{-C}) = -V_\varepsilon(e).$$

The court's subjective expected payoff from overturning the agency is given by,

$$U_C(r = 1; \rho_{-C}) = -\omega^2,$$

since the court learns ω due to the sincere policy choice of the agency. This gives the following incentive compatibility condition for the court to uphold the agency,

$$\sqrt{V_\varepsilon(e)} \leq \omega, \quad (\text{Court-IC Sub. Rvw.})$$

which yields the best response function in the Lemma. ■

Proposition 5 *For any positive level of agency aversion to being overturned by the court, $\pi > 0$, there does not exist a fully sincere equilibrium when the court observes both agency policy and effort choices.*

Proof. From Lemma 8 the court will uphold the agency, given sincere policymaking, if and only if $\sqrt{V_\varepsilon(e)} \leq |\omega|$. Thus, if the agency chooses $x = \sqrt{V_\varepsilon(e)}$, given that the court believes this choice is sincere and therefore equal to ω , the court is indifferent between upholding and overturning the agency. Call this policy choice at which the court is indifferent \underline{x} .

Suppose that $|\omega| < \sqrt{V_\varepsilon(e)}$ so that sincere policymaking leads to the agency being overturned with certainty. The choice for the agency, then, is to either set policy sincerely and be overturned for sure or deviate from sincere policymaking and obfuscate with its policy choice by choosing \underline{x} and being upheld by the court. Then the agency considers the following expected payoffs for sincerity and obfuscation, respectively.

If the agency is sincere and overturned then its expected payoff is,

$$-\beta\omega^2 - \pi.$$

If the agency deviates from sincerity and obfuscates by choosing policy at the court's indifference point to uphold, \underline{x} , then its expected payoff is,

$$-\beta((\underline{x} - \omega)^2 + V_\varepsilon(e)).$$

Combining these gives the agency's incentive compatibility constraint to obfuscate (deviate from sincere policy setting),

$$\text{obfuscate} \iff \beta(\underline{x} - \omega)^2 + \beta V_\varepsilon(e) - \beta \omega^2 \leq \pi.$$

Rearranging this incentive compatibility condition for obfuscating in terms of π yields,

$$\beta(\underline{x} - \omega)^2 + \beta V_\varepsilon(e) - \beta \omega^2 \leq \pi.$$

Now consider an ω realized at a point less than \underline{x} by $\delta > 0$ so that $\omega = \underline{x} - \delta$. Plugging this expression in for ω yields,

$$\beta(\underline{x} - (\underline{x} - \delta))^2 + \beta V_\varepsilon(e) - \beta(\underline{x} - \delta)^2 \leq \pi.$$

Rearranging and simplifying by substituting $\sqrt{V_\varepsilon(e)}$ back in for \underline{x} yields,

$$\begin{aligned} \delta^2 + V_\varepsilon(e) - (V_\varepsilon(e) - \delta)^2 &\leq \frac{\pi}{\delta}, \\ \delta^2 + V_\varepsilon(e) - (\sqrt{V_\varepsilon(e)})^2 + 2V_\varepsilon(e)\delta - \delta^2 &\leq \frac{\pi}{\beta}, \\ \delta &\leq \frac{\pi}{2\beta V_\varepsilon(e)}, \end{aligned} \tag{B.1}$$

which, so long as $\pi > 0$ and $\beta > 0$, holds for an open set of sufficiently small values of $\delta > 0$. That is, since the RHS of Equation 3.9 is strictly positive when $\pi > 0$, a δ always exists such that $\delta \leq \frac{\pi}{2\beta V_\varepsilon(e)}$. Thus, there always exists a realization of $|\omega| < \sqrt{V_\varepsilon(e)}$ such that the agency will deviate from sincere policymaking. This implies a fully sincere equilibrium never exists in the substantive review model if $\pi > 0$, as stated in the proposition. ■

Proposition 6 *Suppose $\omega = 0$. Then the agency will choose policy sincerely despite knowing it will be overturned with certainty by the court if and only if the precision of agency-made policy is too low relative to half its aversion to being overturned: $x = \omega \iff \beta V_\varepsilon(e) > \frac{\pi}{2}$.*

Proof. Recall from the proof of Proposition 5 that the agency's incentive compatibility constraint for obfuscating is:

$$\text{obfuscate} \iff \beta(\underline{x} - \omega)^2 + \beta V_\varepsilon(e) - \beta\omega^2 \leq \pi.$$

This implies the following incentive compatibility constraint for the agency continuing to set policy sincerely despite knowing that it will be overturned:

$$\text{sincerity} \iff \beta(\underline{x} - \omega)^2 + \beta V_\varepsilon(e) - \beta\omega^2 > \pi.$$

Now suppose $\omega = 0$ so that the true state of the world is located exactly at the court and the agency's ideal point. Plugging this into the agency's IC yields,

$$\beta(\underline{x})^2 + \beta V_\varepsilon(e) > \pi.$$

Plugging $\underline{x} = \sqrt{V_\varepsilon(e)}$ back in and simplifying yields,

$$\begin{aligned} 2\beta V_\varepsilon(e) &> \pi, \\ \beta V_\varepsilon(e) &> \frac{\pi}{2}. \end{aligned}$$

Thus, when $\omega = 0$ the agency will continue to set policy sincerely if and only if its incentive compatibility constraint for doing so is met, *i.e.*, if and only if the precision of agency-made policy is too low relative to half its aversion to being overturned, as stated in the proposition. ■

Appendix C

Appendix to Chapter 4

Equilibrium Judicial Review.

Lemma 3. *The Court upholds the Agency's policy actions if and only if the increase in policy precision given the Agency's effort outweighs the net policy loss from upholding an Agency with bias t_A . (i.e., $r = 0 \iff V_F - V_\varepsilon(e) \geq (t_A - t_C)^2 - t_C^2$).*

Proof. The Court's subjective expected utility for overturning the Agency is given by,

$$U_C(r = 1; \rho_{-C}) = -t_C^2 - V_F.$$

The Court's subjective expected utility for upholding the Agency, given $s_A^{x*}(\omega) = \omega + t_A$ (shown in Lemma 10), is given by,

$$U_C(r = 0; \rho_{-C}) = -(t_A - t_C)^2 - V_\varepsilon(e).$$

These expected utilities, combined and rearranged, yield the Court's incentive compatibility condition for upholding the Agency given Agency policy and effort choices. This incentive

compatibility condition is given by,

$$(t_A - t_C)^2 - t_C^2 \leq V_F - V_\varepsilon(e). \quad (\text{C.1})$$

The LHS of Equation C.1 gives the net policy loss the Court bears for upholding an Agency with bias t_A and the RHS gives the increase in policy precision for upholding. The Court upholds the Agency if it is incentive compatible to do so, leading to the result in the lemma that the Court will uphold the Agency if and only if the net policy loss of upholding is weakly outweighed by the increase in policy precision of doing so. ■

Lemma 9. *The Court's optimal judicial review strategy is given by the following expression:*

$$s_C^*(e) = \begin{cases} \text{uphold: } r = 0 & \text{if } e \geq \underline{e}_C(t_A), \\ \text{reverse: } r = 1 & \text{if } e < \underline{e}_C(t_A), \end{cases}$$

where $\underline{e}_C(t_A)$ is the minimum acceptable effort level such that the Court will still uphold the Agency, i.e., $\underline{e}_C(t_A) \equiv e$ such that $V_F - V_\varepsilon(e) = (t_A - t_C)^2 - t_C^2$.

Proof. Follows directly from the Court's incentive compatibility constraint, Equation (C.1), derived in Lemma 3. ■

Agency Decision-making.

Agency Policy Choice.

Lemma 10. *The Agency always sets policy at its ideal point: $s_A^{x*}(\omega) = \omega + t_A$.*

Proof. To show that the Agency always sets policy at its ideal point I show that it is always better off by checking deviations in two cases: (1) when the Court upholds the Agency and (2) when the Court reverses the Agency. In both cases let $\delta > 0$ denote the Agency's deviation so that if the agency deviates $x = \omega + t_A + \delta$.

Case 1: Court upholds. The Agency's expected utility from setting policy sincerely, $x = \omega + t_A$, is given by,

$$U_A(x = \omega + t_A | r = 0) = -\beta V_\varepsilon(e) - \kappa e.$$

The Agency's expected utility from deviating and setting policy to $x = \omega + t_A + \delta$ is given by,

$$U_A(x = \omega + t_A + \delta | r = 0) = -\beta(\delta^2 + V_\varepsilon(e)) - \kappa e.$$

These combine to give the Agency's net expected payoff from deviating from sincere policy-making:

$$\begin{aligned} \Delta U_A(x = \omega + t_A + \delta | r = 0) &= -\beta(\delta^2 + V_\varepsilon(e)) - \kappa e + \beta V_\varepsilon(e) + \kappa e, \\ &= -\beta\delta^2. \end{aligned}$$

If $\beta = 0$ then the Agency is no better off from deviating and if $\beta > 0$ the Agency is strictly worse off from deviating. Thus, when the Court upholds the Agency, the Agency, in weakly undominated strategies, does not deviate and chooses policy at its ideal point.

Case 2: Court reverses. The Agency's expected utility from making policy sincerely given the Court reverses is given by,

$$U_A(x = \omega + t_A | r = 1) = -\beta(t_A^2 + V_F) - \pi.$$

The Agency's expected utility from deviating by δ is given by,

$$U_A(x = \omega + t_A + \delta | r = 1) = -\beta(t_A^2 + V_F) - \pi.$$

The net expected payoff for deviating then, since the Agency receives the same payoff from Court reversal regardless, is zero. Having shown that the Agency gains nothing from deviating from the posited equilibrium strategy of sincere policymaking in both cases, the result follows. ■

Agency Effort Choice.

Lemma 11. *Define $e_A^{\max}(t_A) = \max \left[\min \left[\frac{\beta(t_A^2 + V_F - V_\varepsilon(e_A^{\max}(t_A))) + \pi}{\kappa}, 1 \right], 0 \right]$. The Agency will never invest effort higher than $e_A^{\max}(t_A)$ to be upheld by the Court.*

Proof. When the Agency is constrained its net expected utility from investing the threshold level of effort required to be upheld is given by (I simply use e to represent this level of effort),

$$\Delta U_A(e \geq \underline{e}_C(t_A); \rho_{-A}) = \beta(t_A^2 + V_F - V_\varepsilon(e)) - \kappa e + \pi.$$

Thus, the Agency will invest this level of effort if and only if $\Delta U_A(e \geq \underline{e}_C(t_A); \rho_{-A}) \geq 0$. Solving the expression with equality for e gives the maximum level of effort the Agency would be willing to invest given t_A in order to be upheld (by incentive compatibility):

$$e = \frac{\beta(t_A^2 + V_F - V_\varepsilon(e)) + \pi}{\kappa}. \tag{C.2}$$

The RHS of Equation C.2 can fall below 0 and rise above 1. So to ensure that the maximum level of effort investment the Agency exists further define:

$$e_A^{\max}(t_A) = \max \left[\min \left[\frac{\beta(t_A^2 + V_F - V_\varepsilon(e_A^{\max}(t_A))) + \pi}{\kappa}, 1 \right], 0 \right].$$

Given this formulation, $e_A^{\max}(t_A)$ always exists. The RHS Equation C.2 is continuous over the interval $[0, 1]$ (and if 0 or 1 is the solution). So, either $e_A^{\max}(t_A)$ is on a boundary (0 or 1, if the RHS of Equation C.2 is either negative or above one respectively) or there is an interior solution, which is implied by the Intermediate Value Theorem. Optimality of this as an Agency best response follows from incentive compatibility. ■

Lemma 12. *In equilibrium, the Agency will invest effort according to the following strategy,*

$$s_A^{e*} = \begin{cases} \hat{e}_A(\beta, \kappa) & \text{if } \hat{e}_A(\beta, \kappa) \geq \underline{e}_C(t_A), \\ \underline{e}_C(t_A) & \text{if } \hat{e}_A(\beta, \kappa) < \underline{e}_C(t_A) \text{ and } e_A^{\max}(t_A) \geq \underline{e}_C(t_A), \\ 0 & \text{if } \hat{e}_A(\beta, \kappa) < \underline{e}_C(t_A) \text{ and } e_A^{\max}(t_A) < \underline{e}_C(t_A), \end{cases}$$

where $\hat{e}_A = \arg \max_e -\beta V_\varepsilon(e) - \kappa e$, $\underline{e}_C(t_A) \equiv e$ such that $V_F - V_\varepsilon(e) = (t_A - t_C)^2 - t_C^2$, and $e_A^{\max}(t_A) = \max \left[\min \left[\frac{\beta(t_A^2 + V_F - V_\varepsilon(e_A^{\max}(t_A))) + \pi}{\kappa}, 1 \right], 0 \right]$.

Proof. To verify that these are best responses for the agency we need to check three cases: (1) the court always overturns ($\hat{e}_A(\beta, \kappa) < \underline{e}_C(t_A)$ and $e_A^{\max}(t_A) < \underline{e}_C(t_A)$); (2) the court always upholds ($\hat{e}_A(\beta, \kappa) \geq \underline{e}_C(t_A)$); (3) the court upholds if and only if the agency invests effort high enough, which is higher than the agency would invest absent judicial review ($\hat{e}_A(\beta, \kappa) < \underline{e}_C(t_A)$ and $e_A^{\max}(t_A) \geq \underline{e}_C(t_A)$). These cases are defined by the court's best response in Lemma 9 and the maximum effort investment the agency is willing to make to be upheld in Lemma 11.

Court always overturns (perfectly skeptical). To see why the Agency never invests positive effort in an environment in which it will always be reversed by the Court note that the Agency's expected payoff for investing positive effort given it will be overturned is:

$$U_A(e > 0 | r = 1) = -\beta(t_A^2 + V_F) - \kappa e - \pi.$$

The Agency's expected payoff from investing no effort given it will be overturned is:

$$U_A(e = 0 | r = 1) = -\beta(t_A^2 + V_F) - \pi.$$

These combine to give the Agency's net expected payoff from investing positive effort given that it will be reversed by the Court,

$$\begin{aligned} \Delta U_A(e > 0 | r = 1) &= -\beta(t_A^2 + V_F) + \beta(t_A^2 + V_F) - \kappa e - \pi + \pi, \\ &= -\kappa e. \end{aligned}$$

Thus, if the Agency invests positive effort when it will be reversed it simply pays the cost for that effort, and, therefore, optimally invests zero effort.

Court always upholds (perfectly deferential). When the Agency is unconstrained we simply take the expected payoff for the Agency given it will always be upheld.

$$\begin{aligned}
u_A(e, y, r) &= -\beta(y - t_A)^2 - \kappa e - \pi r, \\
u_A(e, y, 0) &= -\beta(y - t_A)^2 - \kappa e, \\
&= -\beta(x - \omega + \varepsilon - t_A)^2 - \kappa e, \\
&= -\beta(\varepsilon)^2 - \kappa e, \\
U_A(e|r=0) &= -\beta(\mathbb{E}[\varepsilon]^2 + V_\varepsilon(e)) - \kappa e, \\
&= -\beta V_\varepsilon(e) - \kappa e.
\end{aligned}$$

The Agency seeks to maximize $U_A(e|r=0)$ with its effort choice, which implies that the Agency solves the following problem with its choice of effort,

$$\hat{e}_A(\beta, \kappa) = \arg \max_e -\beta V_\varepsilon(e) - \kappa e.$$

Moreover, $\hat{e}_A(\beta, \kappa)$ exists since it is the maximum of a continuous function on a compact set and is unique so long as $V_\varepsilon(e)$ is strictly monotone.

Conditional-deference court. In this environment $\hat{e}_A(\beta, \kappa) < \underline{e}_C(t_A)$ so the Agency is constrained by the Court. The Agency compares its expected utility from investing the threshold level of effort and being upheld by the Court and its expected utility from investing zero effort and being overturned. These expected payoffs are given by the following

expressions, respectively:

$$\begin{aligned} U_A(e = \underline{e}_C; \rho_{-A}) &= -\beta V_\varepsilon(\underline{e}_C) - \kappa \underline{e}_C, \\ U_A(e = 0; \rho_{-A}) &= -\beta(t_A^2 + V_F) - \pi. \end{aligned}$$

These combine to give the net expected payoff for investing the threshold level of effort (and being upheld rather than overturned):

$$\begin{aligned} \Delta U_A(\underline{e}_C; \rho_{-A}) &= -\beta V_\varepsilon(\underline{e}_C) - \kappa \underline{e}_C + \beta(t_A^2 + V_F) + \pi, \\ &= \beta(t_A^2 + V_F - V_\varepsilon(\underline{e}_C)) - \kappa \underline{e}_C + \pi. \end{aligned} \tag{C.3}$$

Equation C.3 gives the Agency's incentive compatibility condition for investing the threshold level of effort, $\underline{e}_C(t_A)$, rather than $e = 0$ and being overturned by the Court. As long as this condition is weakly greater than zero the Agency, in weakly undominated strategies, will invest the threshold level of effort to be upheld when constrained by the Court. ■

Proposition 7. The PBE of the policymaking sub-game between the Agency and the Court is a set of strategies and beliefs $(s_A^{e*}, s_A^{x*}, s_C^*, \mu_C)$ in which,

1. the Agency invests effort according to s_A^{e*} ,
2. the Agency chooses its ideal policy $(s_A^{x*}(\omega))$, and
3. the Court makes judicial review decisions according to $s_C^*(e)$.

Proof. Lemma 9 shows the Court makes review decisions as in part 3. Lemma 10 states that the Agency always sets policy at its ideal point as in part 2. Lemma 12 shows the

Agency's effort investment best response function as in part 1. Taken together, this yields the sub-game equilibrium as stated in the proposition. ■

Lemma 13. *The Agency's equilibrium level of effort when unconstrained by the Court, $\hat{e}_A^*(\beta, \kappa)$, is:*

1. *decreasing the effort costs borne by the Agency, i.e., $\frac{\partial \hat{e}_A^*}{\partial \kappa} < 0$.*
2. *increasing in the Agency's policy motivation, i.e., $\frac{\partial \hat{e}_A^*}{\partial \beta} > 0$.*

Proof. Since the Agency is unconstrained by the Court—judicial review has no impact on Agency effort choice—the Agency chooses an optimal level of effort according to its own motivations (relative to costs) given by,

$$\hat{e}_A(\beta, \kappa) = \arg \max_e -\beta V_\varepsilon(e) - \kappa e.$$

This yields the first order condition,

$$-\beta V'_\varepsilon(e) - \kappa = 0.$$

Applying the Implicit Function Theorem we get the Agency's optimal level of effort when unconstrained with respect to both κ and β , respectively:

$$\frac{\partial \hat{e}_A^*(\beta, \kappa)}{\partial \kappa} = -\frac{1}{\beta V''_\varepsilon(e)} < 0,$$

where $\beta V''_\varepsilon(e) > 0$ follows from $\beta > 0$ and the fact that $V_\varepsilon(e)$ is strictly decreasing and convex. Now optimal Agency effort when unconstrained with respect to policy motivation

is given by,

$$\begin{aligned}\frac{\partial \hat{e}_A^*(\beta, \kappa)}{\partial \beta} &= -\frac{\frac{\kappa}{\beta}}{-\beta V_\varepsilon''(e)}, \\ &= \frac{\kappa}{\beta^2 V_\varepsilon''(e)} > 0,\end{aligned}$$

where $\kappa > 0$ by assumption and $\beta^2 V_\varepsilon''(e) > 0$ follows from the fact that $\beta > 0$ and $V_\varepsilon''(e) > 0$ since $V_\varepsilon(e)$ is strictly decreasing and convex. The results in the lemma follow naturally. ■

Proposition 8. *Policy bias impacts Agency effort if and only if judicial review also impacts Agency effort.*

Proof. This follows directly from the fact that neither π (reversal aversion) nor t_A (agency bias) appear in Equation 4.4 (Agency effort when it is unconstrained by review), and both π and t_A appear in Equations 4.5 and 4.7 (Agency effort when constrained by review). ■

Optimal Agency Bias

Proposition 9. *When there is no judicial review of agency policy actions the Legislature always chooses an Agency with the same ideal point (i.e., $t_A^* = t_L = 0$).*

Proof. We know, from Lemma 10, that the Agency always chooses policy at its ideal point. Thus, $x^* = \omega + t_A$ always. From Lemma 12 we know that when the Agency is unconstrained (review has no impact on effort) it chooses $\hat{e}_A(\beta, \kappa)$ that solves $\arg \max_e -\beta V_\varepsilon(e) - \kappa e$ and from Proposition 8 we know that bias does not affect the Agency's effort when judicial review does not. Therefore, the Legislature's choice of t_A does not impact the Agency's subsequent

effort choice. Consider the Legislature's expected utility from choosing an Agency with ideal point t_A ,

$$\begin{aligned}
U_L(t_A) &= -y^2, \\
&= -(x^* - \omega + \varepsilon)^2, \\
&= -(\omega + t_A - \omega + \varepsilon)^2, \\
&= -t_A^2 - \mathbb{E}[\varepsilon]^2 - V_\varepsilon(e), \\
&= -t_A^2 - V_\varepsilon(e).
\end{aligned}$$

Now, recall that (1) the Agency always chooses $\hat{e}_A(\beta, \kappa)$ (defined above) and therefore generates precision $V_\varepsilon(\hat{e}_A(\beta, \kappa))$ and (2) the choice of t_A has no impact whatsoever on this effort choice. So, the Legislature's expected payoff when it chooses $t_A = t_L = 0$ is given by,

$$U_L(t_A = t_L) = -V_\varepsilon(\hat{e}_A(\beta, \kappa)),$$

while its expected utility from choosing $t_A \neq t_L = 0$ is given by,

$$U_L(t_A \neq t_L) = -t_A^2 - V_\varepsilon(\hat{e}_A(\beta, \kappa)).$$

Combining these yields the net expected payoff of choosing $t_A \neq t_L = 0$,

$$\begin{aligned}
\Delta U_L(t_A \neq t_L) &= -t_A^2 - V_\varepsilon(\hat{e}_A(\beta, \kappa)) + V_\varepsilon(\hat{e}_A(\beta, \kappa)), \\
&= -t_A^2.
\end{aligned}$$

Thus, the Legislature incurs a net loss proportional to the difference between its ideal point and t_A . That is, the Legislature is always better off choosing an Agency that shares its ideal point, $t_A = t_L$, when there is no ex post judicial review. ■

Proposition 10. *The Legislature never gains from setting t_A at a greater distance from its ideal point than is the ideal point of the Court (t_C).*

Proof. Without loss of generality, suppose that $t_C < 0$ and the Legislature sets $t_A^* = t_C - \delta$ where $\delta > 0$. Using the Court's incentive compatibility condition, we can see that $e^*(t_C - \delta) = e^*(t_C + \delta)$. Further, $t_C + \delta$ is closer to the Legislature's ideal point than $t_C - \delta$. Therefore, t_A^* is not a best response. ■

Proposition 11. *Suppose that the Legislature cannot obtain the best case scenario outcome given t_C in which $t_A^* = 0$. Then, the Legislature always sets t_A as extreme as possible away from the Court, in the direction of its own ideal point, conditional on the Agency continuing to invest effort that leads to the Court upholding agency-made policy.*

Proof. Assume that the Legislature always sets t_A so that the Court upholds. Further, suppose that the Legislature always sets t_A so that the Court is indifferent from upholding or overturning. Then, we have that for all t_A :

$$-(t_A - t_C)^2 - V_\varepsilon(e) = -t_C^2 - V_F.$$

That is, the Court is made indifferent between upholding and reversing by the Legislature's choice of t_A . Denote the choice of t_A that solves the Court's incentive compatibility constraint t_A^* with corresponding equilibrium effort investment $e_A^*(t_A^*)$. Substituting these solutions and

rearranging we have the following,

$$V_F = (t_A^* - t_C)^2 - t_C^2 + V_\varepsilon(e_A^*(t_A^*)).$$

Any change in t_A^* (increases) offsets the corresponding change in $V_\varepsilon(e_A^*(t_A^*))$ (decreases) when this constraint holds. (Recall that $e_A(t_A)$ is increasing in t_A while $V_\varepsilon(e_A(t_A))$ is decreasing in $e_A(t_A)$.)

The Legislature's expected payoff from choosing t_A^* so that the Court upholds (as above) is given by,

$$U_L(t_A^*|r=0) = -t_A^{*2} - V_\varepsilon(e_A^*(t_A^*)).$$

The Legislature's expected payoff from choosing a t_A^* that leads to judicial reversal is given by,

$$U_L(t_A^*|r=1) = -V_F.$$

Combining and rearranging yields the Legislature's incentive compatibility condition to set t_A so that the Court upholds:

$$V_F = t_A^{*2} + V_\varepsilon(e_A^*(t_A^*)).$$

Provided that t_A and t_C are oppositely signed, the losses associated with increasing t_A are more than offset by the decrease in $V_\varepsilon(e_A^*(t_A^*))$ from the Legislature's perspective (that is, $(t_A^* - t_C)^2 - t_C^2 > t_A^{*2}$). This is because the Legislature is able to leverage the Court's influence on Agency effort investment. The Court's threshold increases in t_A , which means that as t_A gets increasingly further from t_C the Agency invests more effort to offset the increased distance between their ideal points. The Legislature benefits from this by receiving a disproportionate amount of variance reduction relative to the bias of the Agency from its

perspective. Thus, the Legislature always sets t_A^* as extreme as possible away from the Court in the direction of its own ideal point. ■

Appendix D

Appendix to Chapter 5

Comparative Statics

The comparative statics used in this chapter come from the agency-court sub-game in Chapter 4. Specifically, shifts in equilibrium effort based on parameter changes when oversight has no effect on effort are from equation 4.4 (in Chapter 4):

$$\hat{e}_A(\beta, \kappa) = \arg \max_e [-\beta V_\varepsilon(e) - \kappa e]. \quad (\text{D.1})$$

A simple inspection shows that this equation is increasing in agency policy motivations (β) and decreasing in effort costs (κ). The differential effects discussed in the text come from the shifts (up or down) of the line representing $\hat{e}(\beta, \kappa)$ in the figure (the flat line in the first section of the figure). Note that reversal aversion (π) plays no role in terms of comparative statics when oversight has no effect on effort investments.

Similarly, once oversight does have an effect on effort incentives equation 4.7 (in Chapter 4) is the relevant equation:

$$e_A^{\max}(t_A) = \max \left[\min \left[\frac{\beta(t_A^2 + V_F - V_\varepsilon(e_A^{\max}(t_A))) + \pi}{\kappa}, 1 \right], 0 \right]. \quad (\text{D.2})$$

In this case, (provided it is not already at the upper boundary, 1) the maximum effort the agency is willing to invest is increasing in its policy motivations (β) and its reversal aversion (π), and decreasing in effort costs (κ). Again, the particular effects across ranges of agency biases come from shifts in the upward-sloping portion of the line representing agency effort investments when oversight impacts that choice (in the intermediate and high bias ranges). Formal derivations of these equations can be found in Chapter 4 and Appendix C.